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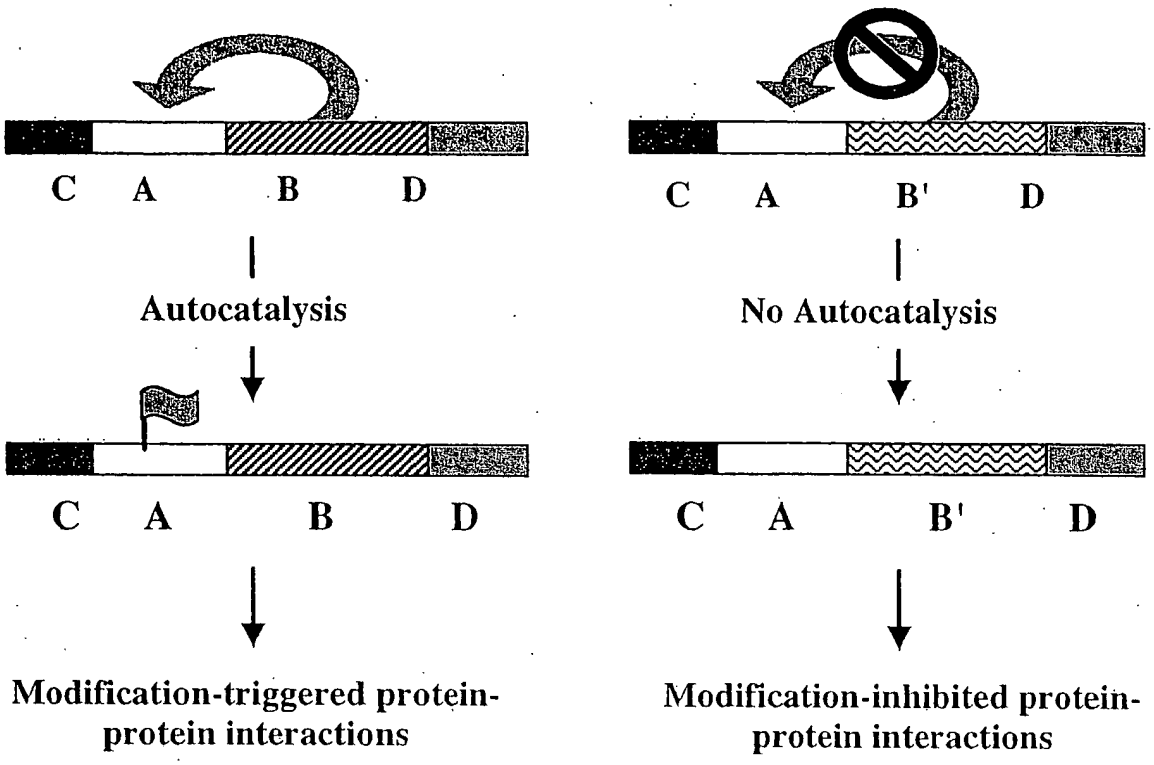


Two additional controls:

FIG. 1

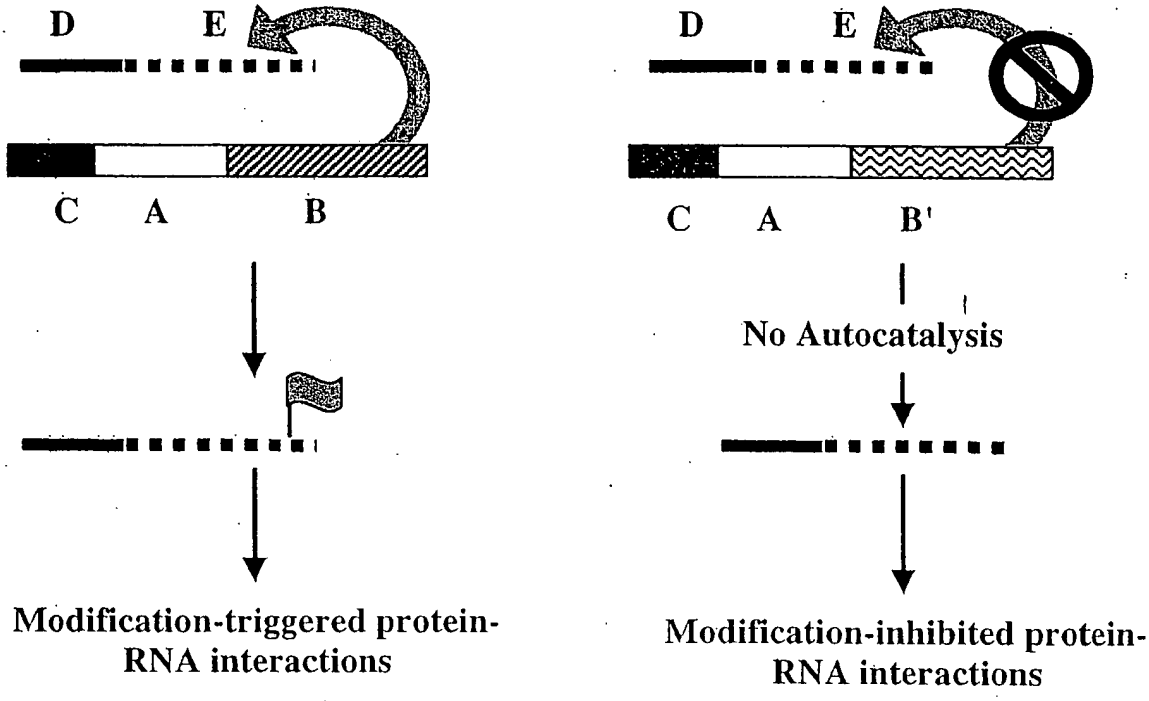

D
E
C
A
B
Modification-triggered protein-RNA interactions
D
E
C
A
B'
No Autocatalysis
Modification-inhibited protein-RNA interactions

FIG. 2

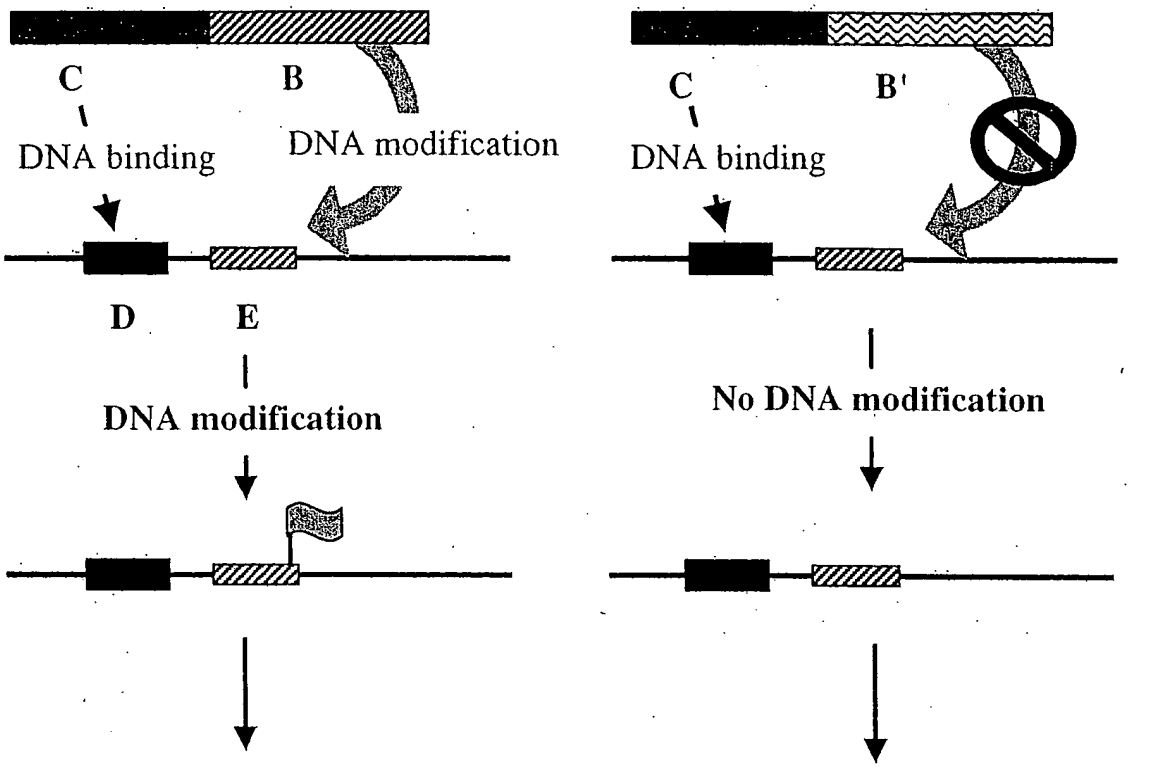

C
B
DNA binding
DNA modification
D
E
DNA modification
Modification-triggered protein-DNA interactions
C
B'
DNA binding
No DNA modification
Modification-inhibited protein-DNA interactions

FIG. 3

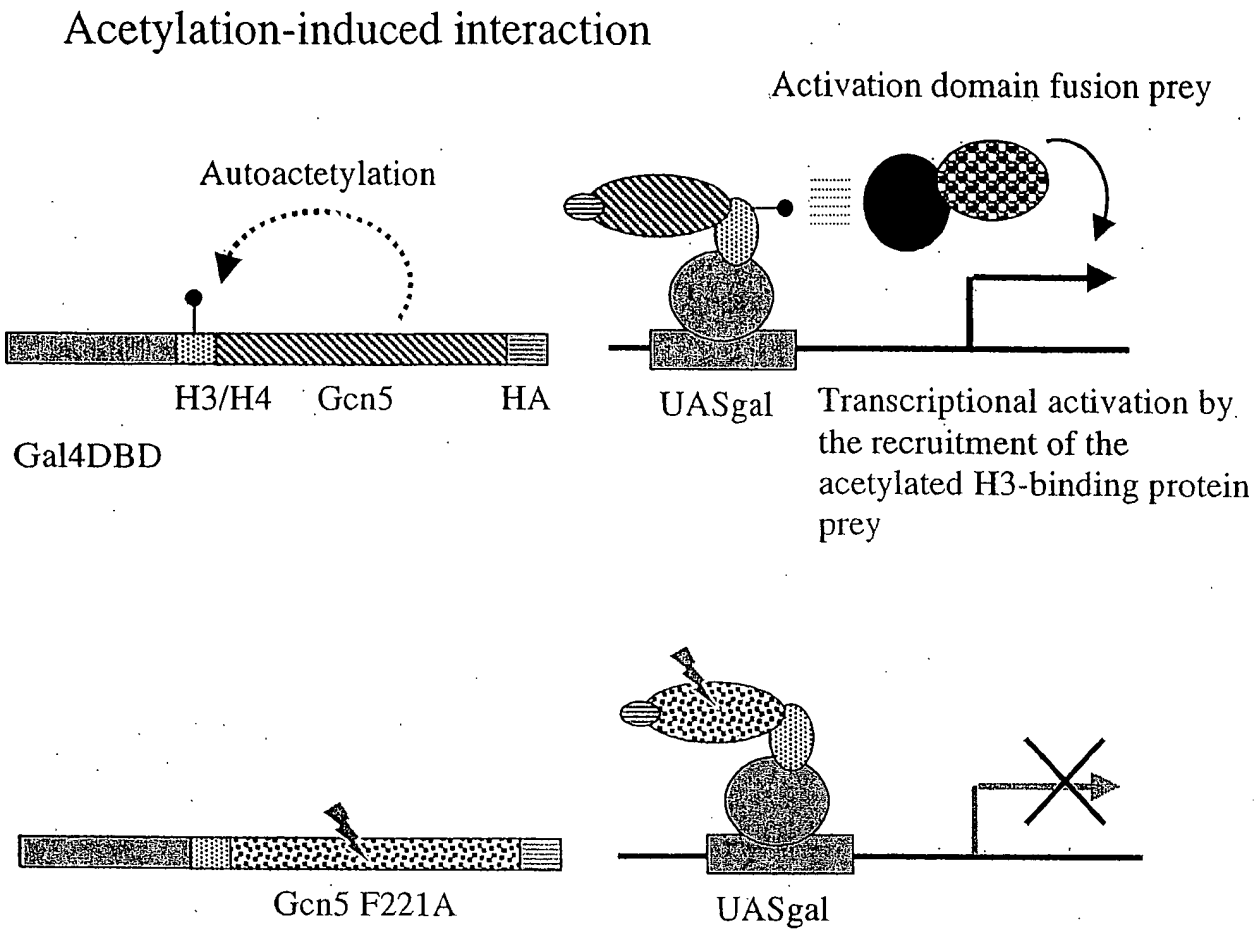

Acetylation-induced interaction
Activation domain fusion prey
Autoactetylation
H3/H4
Gcn5
HA
Gal4DBD
UASgal
Transcriptional activation by the recruitment of the acetylated H3-binding protein prey
Gcn5 F221A
UASgal

FIG. 4

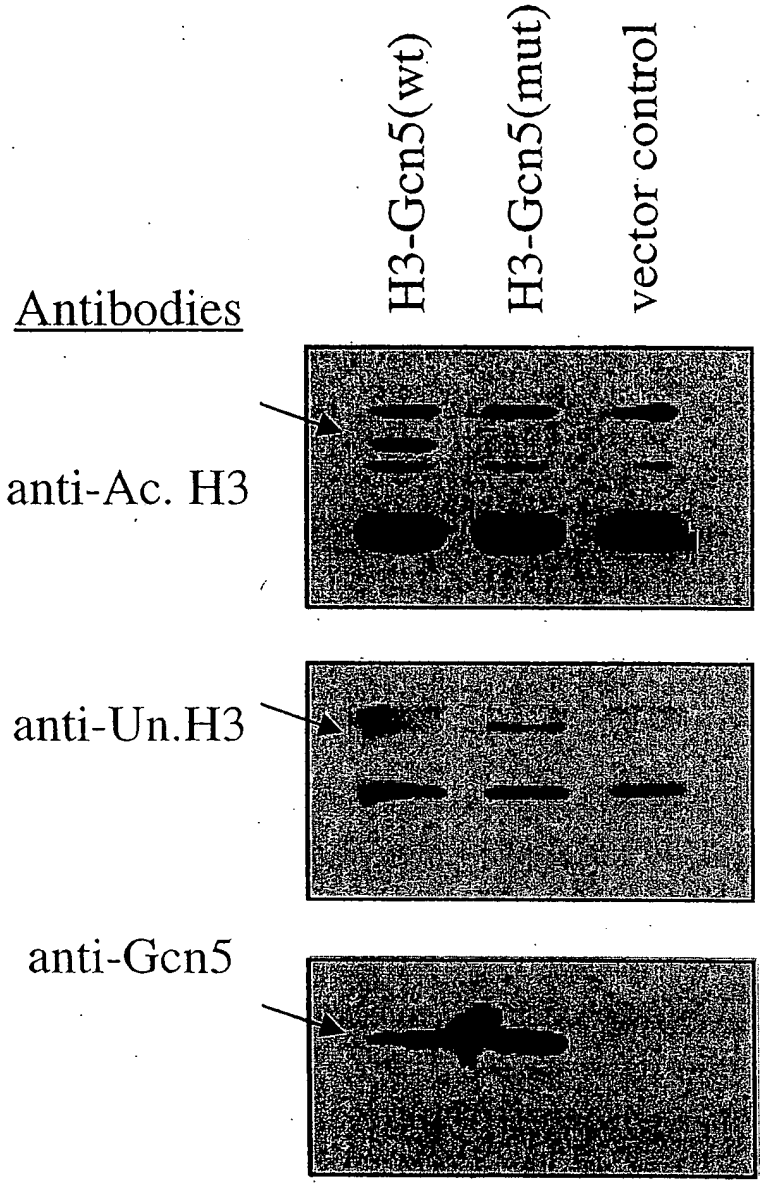
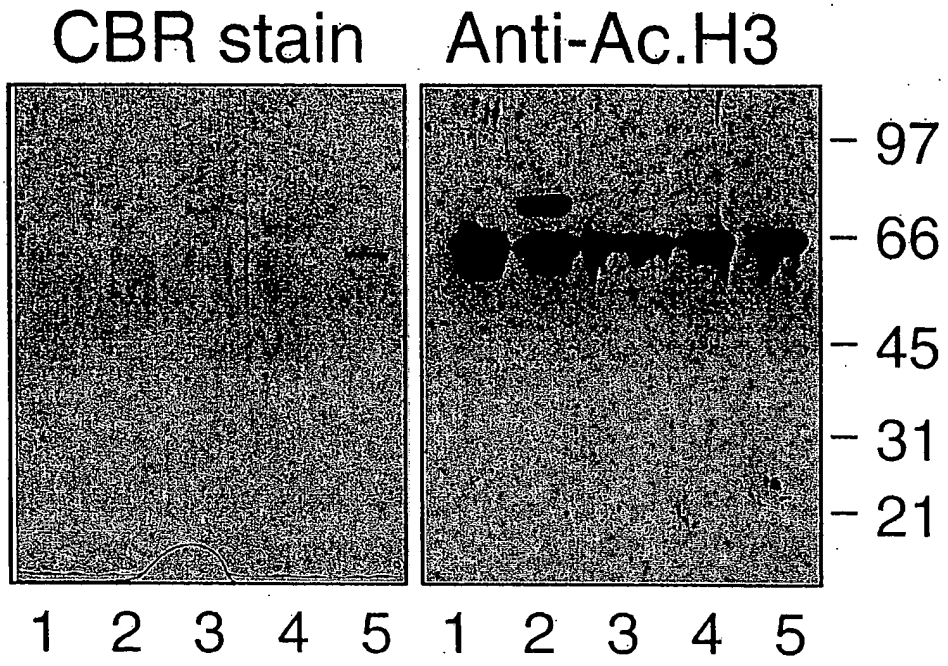
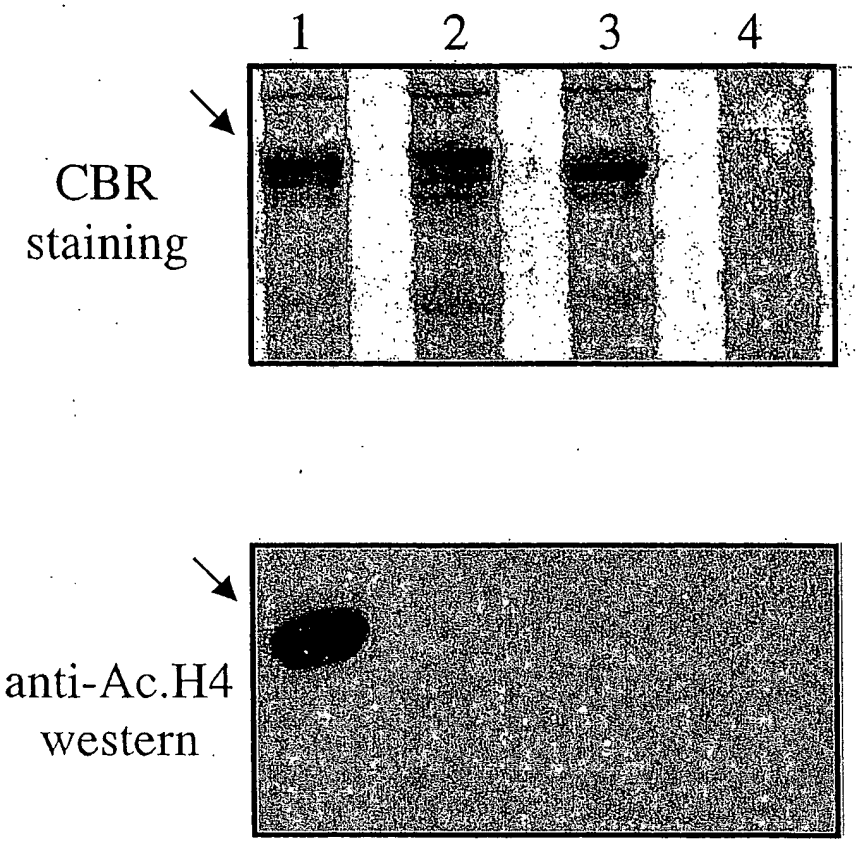

H3-Gcn5(wt)
H3-Gcn5(mut)
vector control
Antibodies
anti-Ac. H3
anti-Un.H3
anti-Gcn5

FIG. 5A



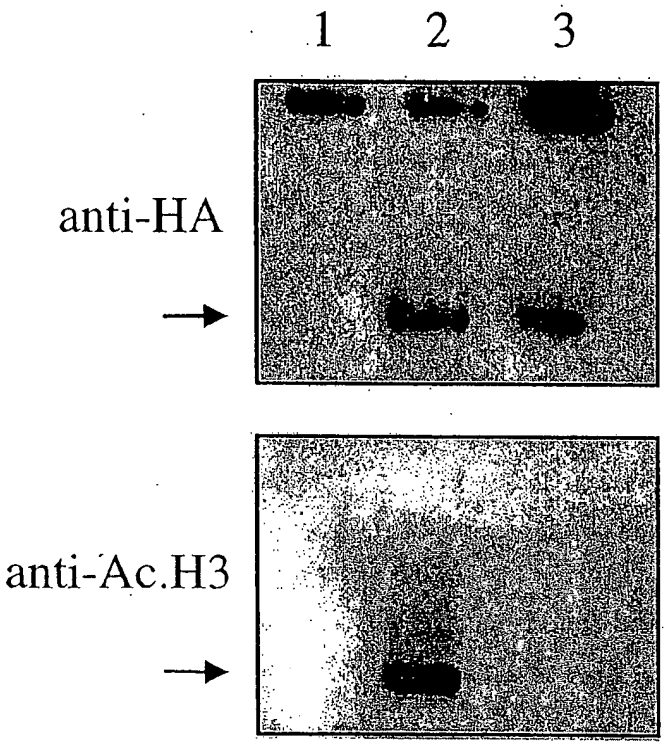
Lane 1. Vector control
Lane 2. H3-GST-Gcn5(wt)-Ras
Lane 3. H3-GST-Gcn5(mut)-Ras
Lane 4. GST-Gcn5(wt)-Ras
Lane 5. BSA, 150 ng control

FIG. 5B



Lane 1. H4-GST-Gcn5(wt)-Ras
Lane 2. H4-GST-Gcn5(mut)-Ras
Lane 3. GST-Gcn5(wt)-Ras
Lane 4. Vector control (Ras only)

FIG. 5C



Lane 1. Vector control (GDBD only)
Lane 2. GDBD-H3-Gcn5(wt)-HA
Lane 3. GDBD-H3-Gcn5(mut)-HA

FIG. 6

1. H3-Gcn5 (wt) + vector
2. H3-Gcn5 (wt) + PCAF
3. H4-Gcn5 (wt) + vector
4. H4-Gcn5 (wt) + PCAF
5. H3-Gcn5 (F221A) + vector
6. H3-Gcn5 (F221A) + PCAF
7. H4-Gcn5 (F221A) + vector
8. H4-Gcn5 (F221A) + PCAF

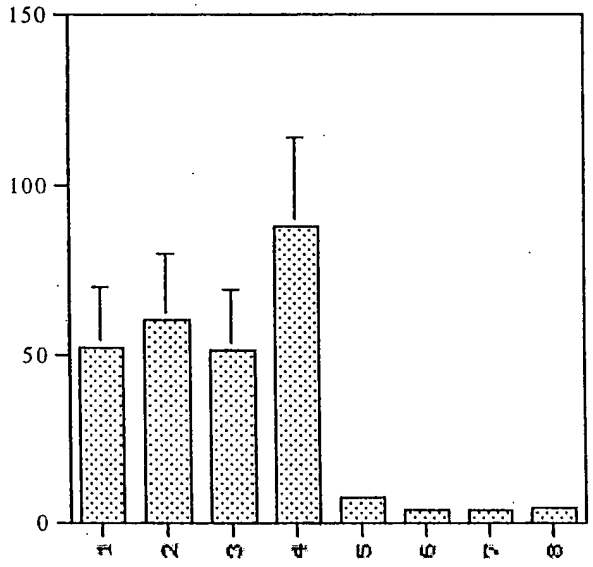


FIG. 7

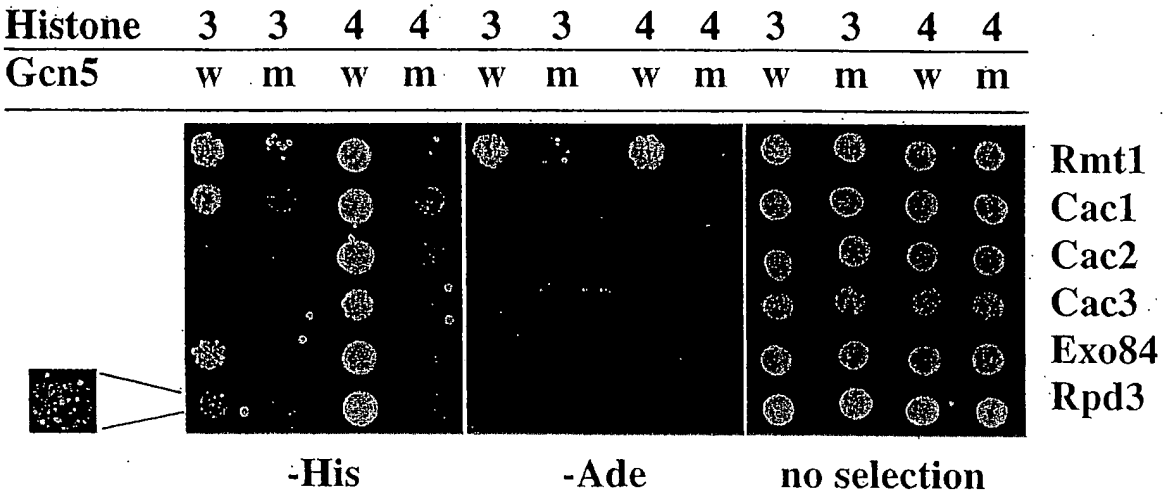

Histone 3 3 4 4 3 3 4 4 3 3 4 4
Gcn5 w m w m w m w m w m w m
Rmt1
Cac1
Cac2
Cac3
Exo84
Rpd3
-His
-Ade
no selection

FIG. 8

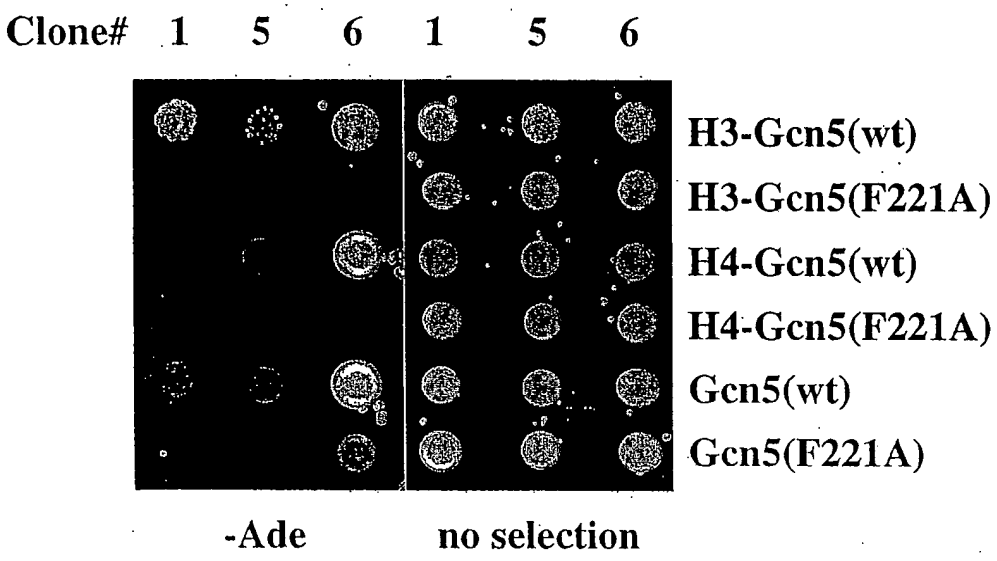
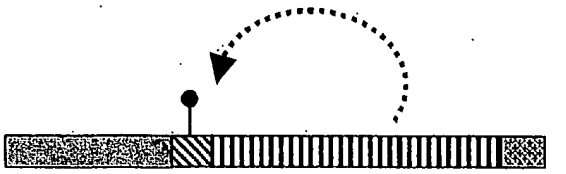

Clone# 1 5 6 1 5 6
H3-Gcn5(wt)
H3-Gcn5(F221A)
H4-Gcn5(wt)
H4-Gcn5(F221A)
Gcn5(wt)
Gcn5(F221A)
-Ade
no selection

FIG. 9

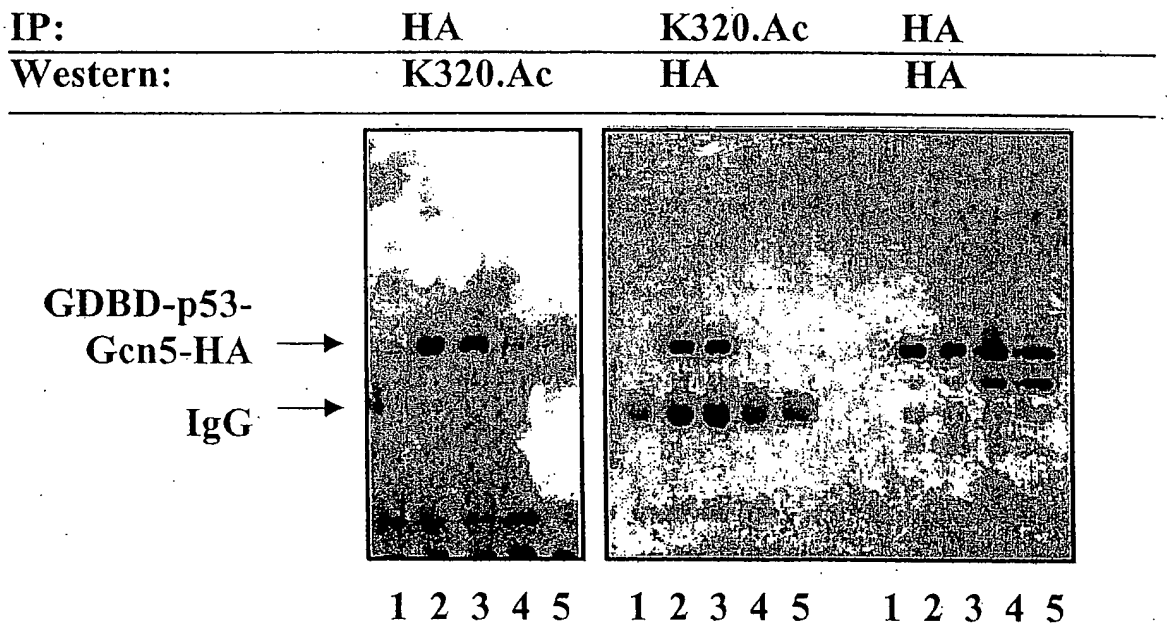
(A)



p53 Gcn5 wt HA

Gcn5 F221A

(B)



1. Antibody only control
2. Wildtype Gcn5
3. Wildtype Gcn5
4. Mutant Gcn5
5. Mutant Gcn5

FIG. 10

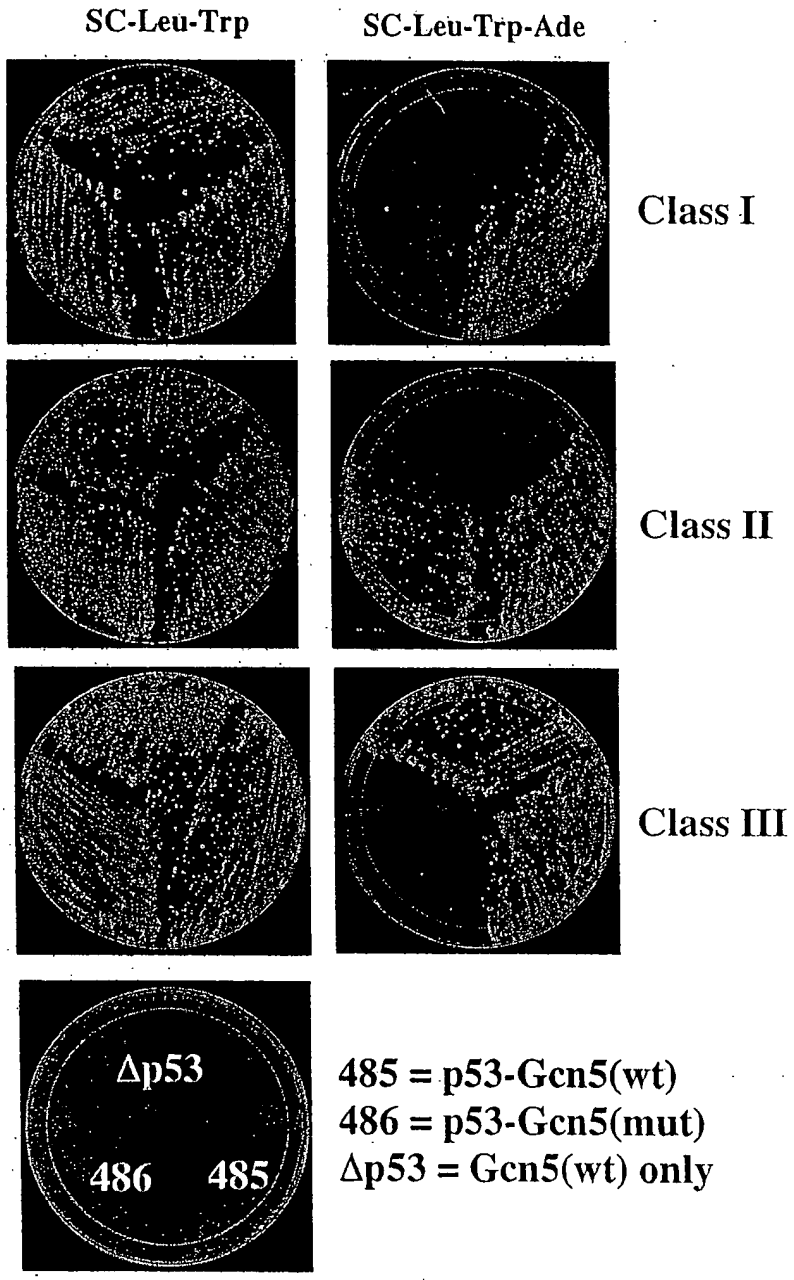

SC-Leu-Trp
SC-Leu-Trp-Ade
Class I
Class II
Class III
Δp53
486
485
485 = p53-Gcn5(wt)
486 = p53-Gcn5(mut)
Δp53 = Gcn5(wt) only

FIG. 11

434-2059: Gal4 DBD-H3-Gcn5-HA
434-874: Gal4 DBD (amino acids 1-147)
953-1129: H3 (amino acids 1-59)
1208-1912: Gcn5 (amino acids 18-252)
1946-2035: trimeric HA
...-...: CEN/ARS
...-...: TRP1

Translation: Gal4-DBD-H3-Gcn5-HA
MKLLSSIEQACDICRLKKLKCSKEKPKCAKCLKNNWECRYSPKTKRSPLTRAHLTEVESRLERLEQLFLLIFPREDLDMI
LKMDSLQDIKALLTGLFVQDNVNKDAVTDRLASVETDMPLTLRQHRISATSSSEEESSNKGQRQLTVSNYLFDDEDTPPNP
KKEIEFQLTTMFMARTKQTARKSTGGKAPRKQLASKAARKSAPSTGGVKKPHRYKPGTVALREIRRFQKSTEPGSPILGY
WKGRRDHPPKSDLIEGRGDPEVKRVKLENNVEEIQPEQAETNKQEGTDKENKGKFEKETERIGGSEVVTDVEKGIVKFEF
DGVEYTFKERPSVVEENEGKIEFRVVNNDNTKENMMVLTGLKNIFQKQLPKMPKEYIARLVYDRSHLSMAVIRKPLTVVG
GITYRPFDKREFAEIVFCAISSTEQVRGYGAHLMNHLKDYVRNTSNIKYFLTYADNYAIGYFKKQGFTKEITLDKSIWMG
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; DNA sequence PDG1 8285 b.p. complete sequence
;
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FIG. 12

tcttatgatttatgatttttattattaaataagttataaaaaaaataagtgtatacaaattttaaagtgactcttaggtt
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FIG. 12 Cont.

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taatgggctaaacaagactacaccaattacactgcctcattgatg
//

FIG. 12 Cont.

434-2059: Gal4 DBD-H3-Gcn5 (F221A)-HA
434-874: Gal4 DBD (amino acids 1-147)
953-1129: H3 (amino acids 1-59)
1208-1912: Gcn5 (amino acids 18-252)
1817-1819: F221A (1817TTT changed to GCT)
1945-2035: trimeric HA

Translation: Gal4-DBD-H3-Gcn5-HA
MKLLSSIEQACDICRLKKLKCSKEKPKCAKCLKNNWECRYSPKTKRSPLTRAHLTEVESRLERLEQLFLLIFPREDLDMI
LKMDSLQDIKALLTGLFVQDNVNKDAVTDRLASVETDMPLTLRQHRISATSSSEESSNKGQRQLTVSNYLFDDEDTPPNP
KKEIEFQLTTMFMARTKQTARKSTGGKAPRKQLASKAARKSAPSTGGVKKPHRYKPGTVALREIRRFQKSTEPGSPILGY
WKGRRDHPPKSDLIEGRGDPEVKRVKLENNVEEIQPEQAETNKQEGTDKENKGKFEKETERIGGSEVVTDVEKGIVKFEF
DGVEYTFKERPSVVEENEGKIEFRVVNNDNTKENMMVLTGLKNIFQKQLPKMPKEYIARLVYDRSHLSMAVIRKPLTVVG
GITYRPFDKREFAEIVFCAISSTEQVRGYGAHLMNHLKDYVRNTSNIKYFLTYADNYAIGYAKKQGFTKEITLDKSIWMG
YIKDYEGGTLMQCNMAIPGGGRIFYPYDVPDYAGYPYDVPDYAGSYPYDVPDYAAQCGRSS

; DNA sequence PDG1 8285 b.p. complete sequence
;
gtggtacataacgaactaatactgtagccctagacttgatagccatcatcatatcgaagtttcactacccttttccatt
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ccatatccgcaatgacaaaaaaatgatggaagacactaaaggaaaaaattaacgacaaagacagcaccaacagatgtcgt
tgttccagagctgatgaggggtatctcgaagcacacgaaacttttccttccttcattgacctgcaattattaatctttt
gtttcctcgtcattgttctcgttccctttctttcttgtttcttttttctgcacaatatttcaagctataccaagcatacaa
tcaactccaagcttgaagcaagcctcctgaaagATGAAGCTACTGTCTTCTATCGAACAAGCATGCGATATTTGCCGACT
TAAAAAGCTCAAGTGCTCCAAAGAAAAACCGAAGTGCGCCAAGTGTCTGAAGAACAACTGGGAGTGTCGCTACTCTCCCA
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CTGATTTTTCCTCGAGAAGACCTTGACATGATTTTGAAAATGGATTCTTTACAGGATATAAAAGCATTGTTAACAGGATT
ATTTGTACAAGATAATGTGAATAAAGATGCCGTCACAGATAGATTGGCTTCAGTGGAGACTGATATGCCTCTAACATTGA
GACAGCATAGAATAAGTGCGACATCATCATCGGAAGAGAGTAGTAACAAAGGTCAAAGACAGTTGACTGTATCGAACTAT
CTATTCGATGATGAAGATACCCCACCAAACCCAAAAAAAGAGATCGAATTCCAGCTGACCACCATGTTTatggccagaac
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tcgtggaGATCCCGAAGTTAAACGGGTAAAATTAGAAAACAACGTTGAAGAAATACAACCTGAGCAGGCTGAGACCAATA
AACAAGAGGGCACCGATAAAGAGAATAAAGGAAAGTTCGAGAAAGAAACTGAGAGAATAGGAGGATCTGAAGTGGTTACA
GATGTGGAAAAAGGAATTGTCAAATTTGAATTTGATGGTGTTGAATACACATTCAAAGAGAGACCCAGTGTCGTAGAGGA
AAATGAAGGTAAAATTGAGTTTAGGGTGGTGAATAATGATAATACTAAAGAAAACATGATGGTCCTAACTGGATTAAAAA
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GCTGTCATTAGGAAGCCATTGACTGTCGTAGGTGGCATAACATATCGACCTTTCGATAAGAGAGAATTCGCAGAAATTGT
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GAAATCACGTTGGATAAAAGTATATGGATGGGATATATTAAAGATTATGAAGGTGGTACGCTGATGCAATGTAACATGGC
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CGTCGACCTGCAGAGATCTAtgaatcgtagatactgaaaaaccccgcaagttcacttcaactgtgcatcgtgcaccatct
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FIG. 13

tcttatgatttatgatttttattattaaataagttataaaaaaaataagtgtatacaaatttaaagtgactcttaggtt
ttaaaacgaaaattcttattcttgagtaactctttcctgtaggtcaggttgctttctcaggtatagcatgaggtcgctct
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agattttatgtttagatcttttatgcttgcttttcaaaaggcttgcaggcaagtgcacaaacaatacttaaataaatact
actcagtaataacctaTTTCTTAGCATTTTTGACGAAATTTGCTATTTTGTTAGAGTCTTTTACACCATTTGTCTCCACA
CCTCCGCTTACATCAACACCAATAACGCCATTTAATCTAAGCGCATCACCAACATTTTCTGGCGTCAGTCCACCAGCTAA
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TTGCGGCATTTTGCCTTCCTGTTTTTGCTCACCCAGAAACGCTGGTGAAAGTAAAAGATGCTGAAGATCAGTTGGGTGCA
CGAGTGGGTTACATCGAACTGGATCTCAACAGCGGTAAGATCCTTGAGAGTTTTCGCCCCGAAGAACGTTTTCCAATGAT
GAGCACTTTTAAAGTTCTGCTATGTGGCGCGGTATTATCCCGTATTGACGCCGGGCAAGAGCAACTCGGTCGCCGCATAC
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TGCAGTGCTGCCATAACCATGAGTGATAACACTGCGGCCAACTTACTTCTGACAACGATCGGAGGACCGAAGGAGCTAAC
CGCTTTTTTGCACAACATGGGGGATCATGTAACTCGCCTTGATCGTTGGGAACCGGAGCTGAATGAAGCCATACCAAACG
ACGAGCGTGACACCACGATGCCTGTAGCAATGGCAACAACGTTGCGCAAACTATTAACTGGCGAACTACTTACTCTAGCT
TCCCGGCAACAATTAATAGACTGGATGGAGGCGGATAAAGTTGCAGGACCACTTCTGCGCTCGGCCCTTCCGGCTGGCTG
GTTTATTGCTGATAAATCTGGAGCCGGTGAGCGTGGGTCTCGCGGTATCATTGCAGCACTGGGGCCAGATGGTAAGCCCT
CCCGTATCGTAGTTATCTACACGACGGGGAGTCAGGCAACTATGGATGAACGAAATAGACAGATCGCTGAGATAGGTGCC
TCACTGATTAAGCATTGGtaactgtcagaccaagtttactcatatatactttagattgatttaaaacttcatttttaatt
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gcagataccaaatactgtccttctagtgtagccgtagttaggccaccacttcaagaactctgtagcaccgcctacatacc
tcgctctgctaatcctgttaccagtggctgctgccagtggcgataagtcgtgtcttaccgggttggactcaagacgatag

FIG. 13 Cont.

ttaccggataaggcgcagcggtcgggctgaacgggggttcgtgcacacagcccagcttggagcgaacgacctacaccga
actgagatacctacagcgtgagctatgagaaagcgccacgcttcccgaagggagaaaggcggacaggtatccggtaagcg
gcagggtcggaacaggagagcgcacgagggagcttccagggggaaacgcctggtatctttatagtcctgtcgggtttcgc
cacctctgacttgagcgtcgatttttgtgatgctcgtcaggggggcggagcctatggaaaaacgccagcaacgcggcctt
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ttaccgcctttgagtgagctgataccgctcgccgcagccgaacgaccgagcgcagcgagtcagtgagcgaggaagcggaa
gagcgcccaatacgcaaaccgcctctccccgcgcgttggccgattcattaatgcaggatccgggatcgaagaaatgatgg
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atatgatgtatttggctttgcggcgccgaaaaaacgagtttacgcaattgcacaatcatgctgactctgtggcggacccg
cgctcttgccggcccggcgataacgctgggcgtgaggctgtgcccggcggagtttttgcgcctgcatttccaaggttt
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cctataataccttcgttggtctccctaacatgtaggtggcggaggggagatatacaatagaacagataccagacaagaca
taatgggctaaacaagactacaccaattacactgcctcattgatg
//

FIG. 13 Cont.

434-1963: Gal4 DBD-H4-Gcn5-HA
434-874: Gal4 DBD (amino acids 1-147)
947-1033: H4 (amino acids 1-29)
1112-1816: Gcn5 (amino acids 18-252)
1850-1939: trimeric HA
...-...: CEN/ARS
...-...: TRP1

Translation: Gal4 DBD-H4-Gcn5-HA
MKLLSSIEQACDICRLKKLKCSKEKPKCAKCLKNNWECRYSPKTKRSPLTRAHLTEVESRLERLEQLFLLIFPREDLDMI
LKMDSLQDIKALLTGLFVQDNVNKDAVTDRLASVETDMPLTLRQHRISATSSSEESSNKGQRQLTVSNYLFDDEDTPPNP
KKEIEFQLTTMSGRGKGGKGLGKGGAKRHRKILRDNIQGISGSPILGYWKGRRDHPPKSDLIEGRGDPEVKRVKLENNVE
EIQPEQAETNKQEGTDKENKGKFEKETERIGGSEVVTDVEKGIVKFEFDGVEYTFKERPSVVEENEGKIEFRVVNNDNTK
ENMMVLTGLKNIFQKQLPKMPKEYIARLVYDRSHLSMAVIRKPLTVVGGITYRPFDKREFAEIVFCAISSTEQVRGYGAH
LMNHLKDYVRNTSNIKYFLTYADNYAIGYFKKQGFTKEITLDKSIWMGYIKDYEGGTLMQCSMAIPGGGRIFYPYDVPDY
AGYPYDVPDYAGSYPYDVPDYAAQCGRSS

; DNA sequence PDG3 8189 b.p. complete sequence
;
gtggtacataacgaactaatactgtagccctagacttgatagccatcatcatatcgaagtttcactacccttttccatt
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ccatatccgcaatgacaaaaaaatgatggaagacactaaaggaaaaaattaacgacaaagacagcaccaacagatgtcgt
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CTGATTTTTCCTCGAGAAGACCTTGACATGATTTTGAAAATGGATTCTTTACAGGATATAAAAGCATTGTTAACAGGATT
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CTATTCGATGATGAAGATACCCCACCAAACCCAAAAAAAGAGATCGAATTCCAGCTGACCACCATGTCCGGTAGAGGTAA
AGGTGGTAAAGGTCTAGGAAAAGGTGGTGCCAAGCGTCACAGAAAGATTCTAAGAGATAACATCCAAGGTATTTCCgggt
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GTTAAACGGGTAAAATTAGAAAACAACGTTGAAGAAATACAACCTGAGCAGGCTGAGACCAATAAACAAGAGGGCACCGA
TAAAGAGAATAAAGGAAAGTTCGAGAAAGAAACTGAGAGAATAGGAGGATCTGAAGTGGTTACAGATGTGGAAAAAGGAA
TTGTCAAATTTGAATTTGATGGTGTTGAATACACATTCAAAGAGAGACCCAGTGTCGTAGAGGAAAATGAAGGTAAAATT
GAGTTTAGGGTGGTGAATAATGATAATACTAAAGAAAACATGATGGTCCTAACTGGATTAAAAAACATTTTTCAAAAGCA
ATTACCAAAAATGCCCAAAGAATACATTGCCAGGTTAGTCTATGATCGAAGTCATCTTTCCATGGCTGTCATTAGGAAGC
CATTGACTGTCGTAGGTGGCATAACATATCGACCTTTCGATAAGAGAGAATTCGCAGAAATTGTTTTCTGTGCCATCAGT
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TCTAtgaatcgtagatactgaaaaaccccgcaagttcacttcaactgtgcatcgtgcaccatctcaatttctttcattta
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FIG. 14

ttttattattaaataagttataaaaaaaataagtgtatacaaattttaaagtgactcttaggttttaaaacgaaaattct
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aagatccttttgataatctcatgaccaaaatcccttaacgtgagttttcgttccactgagcgtcagaccccgtagaaaa
gatcaaaggatcttcttgagatcctttttttctgcgcgtaatctgctgcttgcaaacaaaaaaaccaccgctaccagcgg
tggtttgtttgccggatcaagagctaccaactctttttccgaaggtaactggcttcagcagagcgcagataccaaatact
gtccttctagtgtagccgtagttaggccaccacttcaagaactctgtagcaccgcctacatacctcgctctgctaatcct
gttaccagtggctgctgccagtggcgataagtcgtgtcttaccgggttggactcaagacgatagttaccggataaggcgc

FIG. 14 Cont.

agcggtcgggctgaacgggggttcgtgcacacagcccagcttggagcgaacgacctacaccgaactgagatacctacag
cgtgagctatgagaaagcgccacgcttcccgaagggagaaaggcggacaggtatccggtaagcggcagggtcggaacagg
agagcgcacgagggagcttccagggggaaacgcctggtatctttatagtcctgtcgggtttcgccacctctgacttgagc
gtcgatttttgtgatgctcgtcaggggggcggagcctatggaaaaacgccagcaacgcggccttttacggttcctggcc
ttttgctggccttttgctcacatgttctttcctgcgttatcccctgattctgtggataaccgtattaccgcctttgagtg
agctgataccgctcgccgcagccgaacgaccgagcgcagcgagtcagtgagcgaggaagcggaagagcgcccaatacgca
aaccgcctctccccgcgcgttggccgattcattaatgcaggatccgggatcgaagaaatgatggtaaatgaaataggaaa
tcaaggagcatgaaggcaaaagacaaatataagggtcgaacgaaaaataaagtgaaaagtgttgatatgatgtatttggc
tttgcggcgccgaaaaaacgagtttacgcaattgcacaatcatgctgactctgtggcggacccgcgctcttgccggcccg
gcgataacgctgggcgtgaggctgtgcccggcggagtttttgcgcctgcattttccaaggtttaccctgcgctaagggg
cgagattggagaagcaataagaatgccggttggggttgcgatgatgacgaccacgacaactggtgtcattatttaagttg
ccgaaagaacctgagtgcatttgcaacatgagtatactagaagaatgagccaagacttgcgagacgcgagtttgccggtg
gtgcgaacaatagagcgaccatgaccttgaaggtgagacgcgcataaccgctagagtactttgaagaggaaacagcaata
gggttgctaccagtataaatagacaggtacatacaacactggaaatggttgtctgtttgagtacgctttcaattcatttg
ggtgtgcactttattatgttacaatatggaagggaactttacacttctcctatgcacatatattaattaaagtccaatgc
tagtagagaaggggggtaacacccctccgcgctcttttccgatttttttctaaaccgtggaatatttcggatatccttttt
gttgtttccgggtgtacaatatggacttcctcttttctggcaaccaaacccatacatcgggattcctataataccttcgt
tggtctccctaacatgtaggtggcggaggggagatatacaatagaacagataccagacaagacataatgggctaaacaag
actacaccaattacactgcctcattgatg
//

FIG. 14 Cont.

434-1963: Gal4 DBD-H4-Gcn5-HA
434-874: Gal4 DBD (amino acids 1-147)
947-1033: H4 (amino acids 1-29)
1112-1816: Gcn5 (amino acids 18-252)
1721-1723: F221A point mutation
1850-1939: trimeric HA
...-...: CEN/ARS
...-...: TRP1

Translation: Gal4 DBD-H4-Gcn5-HA
MKLLSSIEQACDICRLKKLKCSKEKPKCAKCLKNNWECRYSPKTKRSPLTRAHLTEVESRLERLEQLFLLIFPREDLDMI
LKMDSLQDIKALLTGLFVQDNVNKDAVTDRLASVETDMPLTLRQHRISATSSSEESSNKGQRQLTVSNYLFDDEDTPPNP
KKEIEFQLTTMSGRGKGGKGLGKGGAKRHRKILRDNIQGISGSPILGYWKGRRDHPPKSDLIEGRGDPEVKRVKLENNVE
EIQPEQAETNKQEGTDKENKGKFEKETERIGGSEVVTDVEKGIVKFEFDGVEYTFKERPSVVEENEGKIEFRVVNNDNTK
ENMMVLTGLKNIFQKQLPKMPKEYIARLVYDRSHLSMAVIRKPLTVVGGITYRPFDKREFAEIVFCAISSTEQVRGYGAH
LMNHLKDYVRNTSNIKYFLTYADNYAIGYAKKQGFTKEITLDKSIWMGYIKDYEGGTLMQCSMAIPGGGRIFYPYDVPDY
AGYPYDVPDYAGSYPYDVPDYAAQCGRSS

; DNA sequence PDG3 8189 b.p. complete sequence
;
gtggtacataacgaactaatactgtagccctagacttgatagccatcatcatatcgaagtttcactacccttttccatt
tgccatctattgaagtaataataggcgcatgcaacttcttttcttttttttttcttttctctctcccccgttgttgtctca
ccatatccgcaatgacaaaaaaatgatggaagacactaaaggaaaaaattaacgacaaagacagcaccaacagatgtcgt
tgttccagagctgatgaggggtatctcgaagcacacgaaacttttttccttccttcattgacctgcaattattaatctttt
gtttcctcgtcattgttctcgttccctttcttccttgtttctttttctgcacaatatttcaagctataccaagcatacaa
tcaactccaagcttgaagcaagcctcctgaaagATGAAGCTACTGTCTTCTATCGAACAAGCATGCGATATTTGCCGACT
TAAAAAGCTCAAGTGCTCCAAAGAAAAACCGAAGTGCGCCAAGTGTCTGAAGAACAACTGGGAGTGTCGCTACTCTCCCA
AAACCAAAAGGTCTCCGCTGACTAGGGCACATCTGACAGAAGTGGAATCAAGGCTAGAAAGACTGGAACAGCTATTTCTA
CTGATTTTTCCTCGAGAAGACCTTGACATGATTTTGAAAATGGATTCTTTACAGGATATAAAAGCATTGTTAACAGGATT
ATTTGTACAAGATAATGTGAATAAAGATGCCGTCACAGATAGATTGGCTTCAGTGGAGACTGATATGCCTCTAACATTGA
GACAGCATAGAATAAGTGCGACATCATCATCGGAAGAGAGTAGTAACAAAGGTCAAAGACAGTTGACTGTATCGAACTAT
CTATTCGATGATGAAGATACCCCACCAAACCCAAAAAAAGAGATCGAATTCCAGCTGACCACCATGTCCGGTAGAGGTAA
AGGTGGTAAAGGTCTAGGAAAAGGTGGTGCCAAGCGTCACAGAAAGATTCTAAGAGATAACATCCAAGGTATTTCCgggt
cccctatactaggttattggaaaggtcgacgcgaccatcctccaaaatcggatctgatcgaaggtcgtggaGATCCCGAA
GTTAAACGGGTAAAATTAGAAAACAACGTTGAAGAAATACAACCTGAGCAGGCTGAGACCAATAAACAAGAGGGCACCGA
TAAAGAGAATAAAGGAAAGTTCGAGAAAGAAACTGAGAGAATAGGAGGATCTGAAGTGGTTACAGATGTGGAAAAAGGAA
TTGTCAAATTTGAATTTGATGGTGTTGAATACACATTCAAAGAGAGACCCAGTGTCGTAGAGGAAAATGAAGGTAAAATT
GAGTTTAGGGTGGTGAATAATGATAATACTAAAGAAAACATGATGGTCCTAACTGGATTAAAAAACATTTTTCAAAAGCA
ATTACCAAAAATGCCCAAAGAATACATTGCCAGGTTAGTCTATGATCGAAGTCATCTTTCCATGGCTGTCATTAGGAAGC
CATTGACTGTCGTAGGTGGCATAACATATCGACCTTTCGATAAGAGAGAATTCGCAGAAATTGTTTTCTGTGCCATCAGT
TCGACGGAACAGGTACGCGGTTATGGTGCGCATCTAATGAATCACTTAAAAGACTATGTTAGAAATACCTCGAACATAAA
ATATTTTTTGACATATGCAGATAATTACGCTATTGGATACTTTAAAAAGCAAGGCTTTACTAAAGAAATCACGTTGGATA
AAAGTATATGGATGGGATATATTAAAGATTATGAAGGTGGTACGCTGATGCAATGTTCCATGGCAATTCCCGGtggcggc
cgcatcttttacccatacgatgttcctgactatgcgggctatccctatgacgtcccggactatgcaggatcctatccata
tgacgttccagattacgctgctcagtgcggccgctctagctagaactagtggatccccGATACCGTCGACCTGCAGAGA
TCTAtgaatcgtagatactgaaaaaccccgcaagttcacttcaactgtgcatcgtgcaccatctcaatttctttcattta
tacatcgttttgccttcttttatgtaactatactcctctaagtttcaatcttggccatgtaacctctgatctatagaatt
ttttaaatgactagaattaatgcccatctttttttttggacctaaattcttcatgaaaatatattacgagggcttattcag

FIG. 15

aagctttggacttcttcgccagaggtttggtcaagtctccaatcaaggttgtcggcttgtctaccttgccagaaatttac
gaaaagatggaaaagggtcaaatcgttggtagatacgttgttgacacttctaaataagcgaatttcttatgatttatgat
ttttattattaaataagttataaaaaaaataagtgtatacaaattttaaagtgactcttaggttttaaaacgaaaattct
tattcttgagtaactctttcctgtaggtcaggttgctttctcaggtatagcatgaggtcgctcttattgaccacacctct
accggcatgccgagcaaatgcctgcaaatcgctccccatttcacccaattgtagatatgctaactccagcaatgagttga
tgaatctcggtgtgtattttatgtcctcagaggacaacacctgttgtaatcgttcttccacacggatcctggcgtaatag
cgaagaggcccgcaccgatcgcccttcccaacagttgcgcagcctgaatggcgaatggcgcctgatgcggtattttctcc
ttacgcatctgtgcggtatttcacaccgcatatatcgctgggccattctcatgaagaatatcttgaatttattgtcatat
tactagttggtgtggaagtccatatatcggtgatcaatatagtggttgacatgctggctagtcaacattgagccttttga
tcatgcaaatatattacggtattttacaatcaaatatcaaacttaactattgactttataacttatttaggtggtaacat
tcttataaaaaagaaaaaaattactgcaaaacagtactagcttttaacttgtatcctaggttatctatgctgtctcacca
tagagaatattacctatttcagaatgtatgtccatgattcgccgggtaaatacatataatacacaaatctggcttaataa
agtctataatatatctcataaagaagtgctaaattggctagtgctatatatttttaagaaaatttcttttgactaagtcc
atatcgactttgtaaaagttcactttagcatacatatattacacgagccagaaattgtaacttttgcctaaaatcacaaa
ttgcaaaatttaattgcttgcaaaaggtcacatgcttataatcaacttttttaaaaatttaaaatacttttttatttttt
atttttaaacataaatgaaataatttatttattgtttatgattaccgaaacataaaacctgctcaagaaaaagaaactgt
tttgtccttggaaaaaaagcactacctaggagcggccaaaatgccgaggctttcatagcttaaactctttacagaaaata
ggcattatagatcagttcgagttttcttattcttccttccggttttatcgtcacagttttacagtaaataagtatcacct
cttagagttcgatgataagctgtcaaacatgagaattaattccacatgttaaaatagtgaaggagcatgttcggcacaca
gtggaccgaacgtggggtaagtgcactagggtccggttaaacggatctcgcattgatgaggcaacgctaattatcaacat
atagattgttatctatctgcatgaacacgaaatctttacttgacgacttgaggctgatggtgtttatgcaaagaaaccac
tgtgtttaatatgtgtcactgtttgatattactgtcagcgtagaagataatagtaaaagcggttaataagtgtatttgag
ataagtgtgataaagtttttacagcgaaaagacgataaatacaagaaaatgattacgaggatacggagagaggtatgtac
atgtgtatttatatactaagctgccggcggttgtttgcaagaccgagaaaaggctagcaagaatcgggtcattgtagcgt
atgcgcctgtgaacattctcttcaacaagtttgattccattgcggtgaaatggtaaaagtcaacccccctgcgatgtatat
tttcctgtacaatcaatcaaaaagccaaatgatttagcattatctttacatcttgttattttacagattttatgtttaga
tcttttatgcttgcttttcaaaaggcttgcaggcaagtgcacaaacaatacttaaataaatactactcagtaataaccta
TTTCTTAGCATTTTTGACGAAATTTGCTATTTTGTTAGAGTCTTTTACACCATTTGTCTCCACACCTCCGCTTACATCAA
CACCAATAACGCCATTTAATCTAAGCGCATCACCAACATTTTCTGGCGTCAGTCCACCAGCTAACATAAAATGTAAGCTC
TCGGGGCTCTCTTGCCTTCCAACCCAGTCAGAAATCGAGTTCCAATCCAAAAGTTCACCTGTCCCACCTGCTTCTGAATC
AAACAAGGGAATAAACGAATGAGGTTTCTGTGAAGCTGCACTGAGTAGTATGTTGCAGTCTTTTGGAAATACGAGTCTTT
TAATAACTGGCAAACCGAGGAACTCTTGGTATTCTTGCCACGACTCATCTCCATGCAGTTGGACGATATCAATGCCGTAA
TCATTGACCAGAGCCAAAACATCCTCCTTAGGTTGATTACGAAACACGCCAACCAAGTATTTCGGAGTGCCTGAACTATT
TTTATATGCTTTTACAAGACTTGAAATTTTCCTTGCAATAACCGGGTCAATTGTTCTCTTTCTATTGGGCACACATATAA
TACCCAGCAAGTCAGCATCGGAATCTAGTGCACATTCTGCGGCCTCTGTGCTCTGCAAGCCGCAAACTTTCACCAATGGA
CCAGAACTACCTGTGAAATTAATAACAGACATactccaagctgcctttgtgtgcttaatcacgtatactcacgtgctcaa
tagtcaccaatgccctccctcttggccctctccttttctttttcgaccgaattaattcttgaagacgaaagggcctcgt
gatacgcctatttttataggttaatgtcatgataataatggtttcttagacgtcaggtggcacttttcggggaaatgtgc
gcggaacccctatttgtttatttttctaaatacattcaaatatgtatccgctcatgagacaataaccctgataaatgctt
caataatattgaaaaaggaagagtATGAGTATTCAACATTTCCGTGTCGCCCTTATTCCCTTTTTTGCGGCATTTTGCCT
TCCTGTTTTTGCTCACCCAGAAACGCTGGTGAAAGTAAAAGATGCTGAAGATCAGTTGGGTGCACGAGTGGGTTACATCG
AACTGGATCTCAACAGCGGTAAGATCCTTGAGAGTTTTCGCCCCGAAGAACGTTTTCCAATGATGAGCACTTTTAAAGTT
CTGCTATGTGGCGCGGTATTATCCCGTATTGACGCCGGGCAAGAGCAACTCGGTCGCCGCATACACTATTCTCAGAATGA
CTTGGTTGAGTACTCACCAGTCACAGAAAAGCATCTTACGGATGGCATGACAGTAAGAGAATTATGCAGTGCTGCCATAA
CCATGAGTGATAACACTGCGGCCAACTTACTTCTGACAACGATCGGAGGACCGAAGGAGCTAACCGCTTTTTTGCACAAC
ATGGGGGATCATGTAACTCGCCTTGATCGTTGGGAACCGGAGCTGAATGAAGCCATACCAAACGACGAGCGTGACACCAC
GATGCCTGTAGCAATGGCAACAACGTTGCGCAAACTATTAACTGGCGAACTACTTACTCTAGCTTCCCGGCAACAATTAA
TAGACTGGATGGAGGCGGATAAAGTTGCAGGACCACTTCTGCGCTCGGCCCTTCCGGCTGGCTGGTTTATTGCTGATAAA
TCTGGAGCCGGTGAGCGTGGGTCTCGCGGTATCATTGCAGCACTGGGGCCAGATGGTAAGCCCTCCCGTATCGTAGTTAT
CTACACGACGGGGAGTCAGGCAACTATGGATGAACGAAATAGACAGATCGCTGAGATAGGTGCCTCACTGATTAAGCATT
GGtaactgtcagaccaagtttactcatatatactttagattgatttaaaacttcatttttaatttaaaaggatctaggtg
aagatccttttgataatctcatgaccaaaatcccttaacgtgagttttcgttccactgagcgtcagaccccgtagaaaa
gatcaaaggatcttcttgagatccttttttttctgcgcgtaatctgctgcttgcaaacaaaaaaaccaccgctaccagcgg
tggtttgtttgccggatcaagagctaccaactctttttccgaaggtaactggcttcagcagagcgcagataccaaatact

FIG. 15 Cont.

gtccttctagtgtagccgtagttaggccaccacttcaagaactctgtagcaccgcctacatacctcgctctgctaatcct
gttaccagtggctgctgccagtggcgataagtcgtgtcttaccgggttggactcaagacgatagttaccggataaggcgc
agcggtcgggctgaacgggggttcgtgcacacagcccagcttggagcgaacgacctacaccgaactgagatacctacag
cgtgagctatgagaaagcgccacgcttcccgaagggagaaaggcggacaggtatccggtaagcggcagggtcggaacagg
agagcgcacgagggagcttccagggggaaacgcctggtatctttatagtcctgtcgggtttcgccacctctgacttgagc
gtcgatttttgtgatgctcgtcaggggggcggagcctatggaaaaacgccagcaacgcggccttttacggttcctggcc
ttttgctggccttttgctcacatgttctttcctgcgttatcccctgattctgtggataaccgtattaccgcctttgagtg
agctgataccgctcgccgcagccgaacgaccgagcgcagcgagtcagtgagcgaggaagcggaagagcgcccaatacgca
aaccgcctctccccgcgcgttggccgattcattaatgcaggatccgggatcgaagaaatgatggtaaatgaaataggaaa
tcaaggagcatgaaggcaaaagacaaatataagggtcgaacgaaaaataaagtgaaaagtgttgatatgatgtatttggc
tttgcggcgccgaaaaaacgagtttacgcaattgcacaatcatgctgactctgtggcggacccgcgctcttgccggcccg
gcgataacgctgggcgtgaggctgtgcccggcggagtttttgcgcctgcattttccaaggtttaccctgcgctaagggg
cgagattggagaagcaataagaatgccggttggggttgcgatgatgacgaccacgacaactggtgtcattatttaagttg
ccgaaagaacctgagtgcatttgcaacatgagtatactagaagaatgagccaagacttgcgagacgcgagtttgccggtg
gtgcgaacaatagagcgaccatgaccttgaaggtgagacgcgcataaccgctagagtactttgaagaggaaacagcaata
gggttgctaccagtataaatagacaggtacatacaacactggaaatggttgtctgtttgagtacgctttcaattcatttg
ggtgtgcactttattatgttacaatatggaagggaactttacacttctcctatgcacatatattaattaaagtccaatgc
tagtagagaaggggggtaacacccctccgcgctcttttccgatttttttctaaaccgtggaatatttcggatatccttttt
gttgtttccgggtgtacaatatggacttcctcttttctggcaaccaaacccatacatcgggattcctataataccttcgt
tggtctccctaacatgtaggtggcggaggggagatatacaatagaacagataccagacaagacataatgggctaaacaag
actacaccaattacactgcctcattgatg
//

FIG. 15 Cont.

5988-7613: Gal4 DBD-H3-Gcn5-HA
5988-6428: Gal4 DBD (amino acids 1-147)
6507-6683: H3 (amino acids 1-59)
6762-7466: Gcn5 (amino acids 18-252)
7500-7589: trimeric HA
...-...: 2μ
...-...: LEU2

Translation: Gal4-DBD-H3-Gcn5-HA
MKLLSSIEQACDICRLKKLKCSKEKPKCAKCLKNNWECRYSPKTKRSPLTRAHLTEVESRLERLEQLFLLIFPREDLDMI
LKMDSLQDIKALLTGLFVQDNVNKDAVTDRLASVETDMPLTLRQHRISATSSSEESSNKGQRQLTVSNYLFDDEDTPPNP
KKEIEFQLTTMFMARTKQTARKSTGGKAPRKQLASKAARKSAPSTGGVKKPHRYKPGTVALREIRRFQKSTEPGSPILGY
WKGRRDHPPKSDLIEGRGDPEVKRVKLENNVEEIQPEQAETNKQEGTDKENKGKFEKETERIGGSEVVTDVEKGIVKFEF
DGVEYTFKERPSVVEENEGKIEFRVVNNDNTKENMMVLTGLKNIFQKQLPKMPKEYIARLVYDRSHLSMAVIRKPLTVVG
GITYRPFDKREFAEIVFCAISSTEQVRGYGAHLMNHLKDYVRNTSNIKYFLTYADNYAIGYFKKQGFTKEITLDKSIWMG
YIKDYEGGTLMQCNMAIPGGGRIFYPYDVPDYAGYPYDVPDYAGSYPYDVPDYAAQCGRSS

; ### from DNA Strider Saturday, March 22, 2003 1:27:34 PM
; DNA sequence pdg5 7891 b.p. complete sequence
;
TCTTCCGCTTCCTCGCTCACTGACTCGCTGCGCTCGGTCGTTCGGCTGCGGCGAGCGGTATCAGCTCACTCAAAGGCGGT
AATACGGTTATCCACAGAATCAGGGGATAACGCAGGAAAGAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTA
AAAAGGCCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGG
TGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCCCTGGAAGCTCCCTCGTGCGCTCTCCTGTTCCGACCCT
GCCGCTTACCGGATACCTGTCCGCCTTTCTCCCTTCGGGAAGCGTGGCGCTTTCTCATAGCTCACGCTGTAGGTATCTCA
GTTCGGTGTAGGTCGTTCGCTCCAAGCTGGGCTGTGTGCACGAACCCCCCGTTCAGCCCGACCGCTGCGCCTTATCCGGT
AACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGC
GAGGTATGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGGACAGTATTTGGTATCT
GCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGT
GGTTTTTTTGTTTGCAAGCAGCAGATTACGCGCAGAAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGGTC
TGACGCTCAGTGGAACGAAAACTCACGTTAAGGGATTTTGGTCATGAGATTATCAAAAAGGATCTTCACCTAGATCCTTT
TAAATTAAAAATGAAGTTTTAAATCAATCTAAAGTATATATGAGTAAACTTGGTCTGACAGTTACCAATGCTTAATCAGT
GAGGCACCTATCTCAGCGATCTGTCTATTTCGTTCATCCATAGTTGCCTGACTCCCCGTCGTGTAGATAACTACGATACG
GGAGGGCTTACCATCTGGCCCCAGTGCTGCAATGATACCGCGAGACCCACGCTCACCGGCTCCAGATTTATCAGCAATAA
ACCAGCCAGCCGGAAGGGCCGAGCGCAGAAGTGGTCCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGG
GAAGCTAGAGTAAGTAGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCACGCTC
GTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACATGATCCCCCATGTTGTGCAAAAAAG
CGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGAAGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTG
CATAATTCTCTTACTGTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGAGAATA
GTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCGCCACATAGCAGAACTTTAAAAGTGC
TCATCATTGGAAAACGTTCTTCGGGGCGAAAACTCTCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACT
CGTGCACCCAACTGATCTTCAGCATCTTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAATGCCGC
AAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTCCTTTTTCAATATTATTGAAGCATTTATCAGG
GTTATTGTCTCATGAGCGGATACATATTTGAATGTATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCGA
AAAGTGCCACCTGACGTCTAAGAAACCATTATTATCATGACATTAACCTATAAAAATAGGCGTATCACGAGGCCCTTTCG
TCTTCAAGAATTAACTGTGGGAATACTCAGGTATCGTAAGATGCAAGAGTTCGAATCTCTTAGCAACCATTATTTTTTTC
CTCAACATAACGAGAACACACAGGGGCGCTATCGCACAGACAAATTCGATGACTGGAAATTTTTTGTTAATTTCAGAGGT
CGCCGCGCATATACCTTTTTCAACTGAAAAATTGGGAGAAAAAGGAAAGGTGAGAGGCCGGAACCGGCTTTTCATATAGA
ATAGAGAAGCGTTCATGACTAAATGCTTGCATCACAATACTTGAAGTTGACAATATTATTTAAGGACCTATTGTTTTTTC

FIG. 16

CAATAGGTGGTTAGCAATCGTCTTATTCTAACTTTTCTTACCTTTTACATTTCAGCAATATATATATATATTTCAAGGAT
ATACATTCTAATGTCTGCCCCTATGTCTGCCCCTAAGAAGATCGTCGTTTTGCCAGGTGACCACGTTGGTCAAGATCACA
GCCGAAGCCATTAAGGTTCTTAAAGCTATTTCTGATGTTCGTTCCAATGTCAAGTTCGATTTCGAAAATCATTTAATTGG
TGGTGCTGCTATCGATGCTACAGGTGTCCCACTTCCAGATGAGGCGCTGGAAGCCTCCAAGAAGGTTGATGCCGTTTTGT
TAGGTGCTGTGGGTGGTCCTAAATGGGGTACAGGTAGTGTTAGACCTGAACAAGGTTTACTAAAAATCCGTAAAGAACTT
CAATTGTACGCCAACTTAAGACCATGTAACTTTGCATCCGACTCTCTTTTAGACTTATCTCCAATCAAGCCACAATTTGC
TAAAGGTACTGACTTCGTTGTTGTCAGAGAATTAGTGGGAGGTATTTACTTTGGTAAGAGAAAGGAAGACGATGGTGATG
GTGTCGCTTGGGATAGTGAACAATACACCGTTCCAGAAGTGCAAAGAATCACAAGAATGGCCGCTTTCATGGCCCTACAA
CATGAGCCACCATTGCCTATTTGGTCCTTGGATAAAGCTAATGTTTTGGCCTCTTCAAGATTATGGAGAAAAACTGTGGA
GGAAACCATCAAGAACGAATTTCCTACATTGAAGGTTCAACATCAATTGATTGATTCTGCCGCCATGATCCTAGTTAAGA
ACCCAACCCACCTAAATGGTATTATAATCACCAGCAACATGTTTGGTGATATCATCTCCGATGAAGCCTCCGTTATCCCA
GGTTCCTTGGGTTTGTTGCCATCTGCGTCCTTGGCCTCTTTGCCAGACAAGAACACCGCATTTGGTTTGTACGAACCATG
CCACGGTTCTGCTCCAGATTTGCCAAAGAATAAGGTTGACCCTATCGCCACTATCTTGTCTGCTGCAATGATGTTGAAAT
TGTCATTGAACTTGCCTGAAGAAGGTAAGGCCATTGAAGATGCAGTTAAAAAGGTTTTGGATGCAGGTATCAGAACTGGT
GATTTAGGTGGTTCCAACAGTACCACCGAAGTCGGTGATGCTGTCGCCGAAGAAGTTAAGAAAATCCTTGCTTAAAAAGA
TTCTCTTTTTTTATGATATTTGTACATAAACTTTATAAATGAAATTCATAATAGAAACGACACGAAATTACAAAATGGAA
TATGTTCATAGGGTAGAATTAATTCTCATGTTTGACAGCTTATCATCGGATCGATCCAATATCAAAGGAAATGATAGCAT
TGAAGGATGAGACTAATCCAATTGAGGAGTGGCAGCATATAGAACAGCTAAAGGGTAGTGCTGAAGGAAGCATACGATAC
CCCGCATGGAATGGGATAATATCACAGGAGGTACTAGACTACCTTTCATCCTACATAAATAGACGCATATAAGTACGCAT
TTAAGCATAAACACGCACTATGCCGTTCTTCTCATGTATATATATATACAGGCAACACGCAGATATAGGTGCGACGTGAA
CAGTGAGCTGTATGTGCGCAGCTCGCGTTGCATTTTCGGAAGCGCTCGTTTTCGGAAACGCTTTGAAGTTCCTATTCCGA
AGTTCCTATTCTCTAGCTAGAAAGTATAGGAACTTCAGAGCGCTTTTGAAAACCAAAAGCGCTCTGAAGACGCACTTTCA
AAAAACCAAAAACGCACCGGACTGTAACGAGCTACTAAAATATTGCGAATACCGCTTCCACAAACATTGCTCAAAAGTAT
CTCTTTGCTATATATCTCTGTGCTATATCCCTATATAACCTACCCATCCACCTTTCGCTCCTTGAACTTGCATCTAAACT
CGACCTCTACATTTTTTATGTTTATCTCTAGTATTACTCTTTAGACAAAAAAATTGTAGTAAGAACTATTCATAGAGTGA
ATCGAAAACAATACGAAAATGTAAACATTTCCTATACGTAGTATATAGAGACAAAATAGAAGAAACCGTTCATAATTTTC
TGACCAATGAAGAATCATCAACGCTATCACTTTCTGTTCACAAAGTATGCGCAATCCACATCGGTATAGAATATAATCGG
GGATGCCTTTATCTTGAAAAAATGCACCCGCAGCTTCGCTAGTAATCAGTAAACGCGGGAAGTGGAGTCAGGCTTTTTTT
ATGGAAGAGAAAATAGACACCAAAGTAGCCTTCTTCTAACCTTAACGGACCTACAGTGCAAAAAGTTATCAAGAGACTGC
ATTATAGAGCGCACAAAGGAGAAAAAAAGTAATCTAAGATGCTTTGTTAGAAAAATAGCGCTCTCGGGATGCATTTTTGT
AGAACAAAAAAGAAGTATAGATTCTTTGTTGGTAAAATAGCGCTCTCGCGTTGCATTTCTGTTCTGTAAAAATGCAGCTC
AGATTCTTTGTTTGAAAAATTAGCGCTCTCGCGTTGCATTTTTGTTTTACAAAAATGAAGCACAGATTCTTCGTTGGTAA
AATAGCGCTTTCGCGTTGCATTTCTGTTCTGTAAAAATGCAGCTCAGATTCTTTGTTTGAAAAATTAGCGCTCTCGCGTT
GCATTTTTGTTCTACAAAATGAAGCACAGATGCTTCGTTAACAAAGATATGCTATTGAAGTGCAAGATGGAAACGCAGAA
AATGAACCGGGGATGCGACGTGCAAGATTACCTATGCAATAGATGCAATAGTTTCTCCAGGAACCGAAATACATACATTG
TCTTCCGTAAAGCGCTAGACTATATATTATTATACAGGTTCAAATATACTATCTGTTTCAGGGAAAACTCCCAGGTTCGG
ATGTTCAAAATTCAATGATGGGTAACAAGTACGATCCGATATATGCGGTGTGAAATACCGCACAGATGCGTAAGGAGAAA
ATACCGCATCAGGCGCCATTCGCCATTCAGGCTGCGCAACTGTTGGGAAGGGCGATCGGTGCGGGCCTCTTCGCTATTAC
GCCAGCTGGCGAAAGGGGGATGTGCTGCAAGGCGATTAAGTTGGGTAACGCCAGGGTTTTCCCAGTCACGACGTTGTAAA
ACGACGGCCAGTGAATTcatgtaggtggcggaggggagatatacaatagaacagataccagacaagacataatgggctaa
acaagactacaccaattacactgcctcattgatggtggtacataacgaactaatactgtagccctagacttgatagccat
catcatatcgaagtttcactacccttttccatttgccatctattgaagtaataataggcgcatgcaacttcttttcttt
ttttttcttttctctctcccccgttgttgtctcaccatatccgcaatgacaaaaaaatgatggaagacactaaaggaaaa
aattaacgacaaagacagcaccaacagatgtcgttgttccagagctgatgaggggtatctcgaagcacacgaaacttttt
ccttccttcattgacctgcaattattaatcttttgtttcctcgtcattgttctcgttccctttcttccttgtttctttttt
ctgcacaatatttcaagctataccaagcatacaatcaactccaagcttgaagcaagcctcctgaaagATGAAGCTACTGT
CTTCTATCGAACAAGCATGCGATATTTGCCGACTTAAAAAGCTCAAGTGCTCCAAAGAAAAACCGAAGTGCGCCAAGTGT
CTGAAGAACAACTGGGAGTGTCGCTACTCTCCCAAAACCAAAAGGTCTCCGCTGACTAGGGCACATCTGACAGAAGTGGA
ATCAAGGCTAGAAAGACTGGAACAGCTATTTCTACTGATTTTTCCTCGAGAAGACCTTGACATGATTTTGAAAATGGATT
CTTTACAGGATATAAAAGCATTGTTAACAGGATTATTTGTACAAGATAATGTGAATAAAGATGCCGTCACAGATAGATTG
GCTTCAGTGGAGACTGATATGCCTCTAACATTGAGACAGCATAGAATAAGTGCGACATCATCATCGGAAGAGAGTAGTAA
CAAAGGTCAAAGACAGTTGACTGTATCGAACTATCTATTCGATGATGAAGATACCCCACCAAACCCAAAAAAAGAGATCG
AATTCCAGCTGACCACCATGTTTatggccagaacaaagcaaacagcaagaaagtccactggtggtaaggccccaagaaag
caattagcttctaaggctgccagaaaatccgccccatctaccggtggtgttaagaagcctcacagatataagccaggtac

FIG. 16 Cont.

tgttgctttgagagaaatcagaagattccaaaaatctactgaaCCCgggtcccctatactaggttattggaaaggtcgac
gcgaccatcctccaaaatcggatctgatcgaaggtcgtggaGATCCCGAAGTTAAACGGGTAAAATTAGAAAACAACGTT
GAAGAAATACAACCTGAGCAGGCTGAGACCAATAAACAAGAGGGCACCGATAAAGAGAATAAAGGAAAGTTCGAGAAAGA
AACTGAGAGAATAGGAGGATCTGAAGTGGTTACAGATGTGGAAAAAGGAATTGTCAAATTTGAATTTGATGGTGTTGAAT
ACACATTCAAAGAGAGACCCAGTGTCGTAGAGGAAAATGAAGGTAAAATTGAGTTTAGGGTGGTGAATAATGATAATACT
AAAGAAAACATGATGGTCCTAACTGGATTAAAAAACATTTTTCAAAAGCAATTACCAAAAATGCCCAAAGAATACATTGC
CAGGTTAGTCTATGATCGAAGTCATCTTTCCATGGCTGTCATTAGGAAGCCATTGACTGTCGTAGGTGGCATAACATATC
GACCTTTCGATAAGAGAGAATTCGCAGAAATTGTTTTCTGTGCCATCAGTTCGACGGAACAGGTACGCGGTTATGGTGCG
CATCTAATGAATCACTTAAAAGACTATGTTAGAAATACCTCGAACATAAAATATTTTTTGACATATGCAGATAATTACGC
TATTGGATACTTTAAAAAGCAAGGCTTTACTAAAGAAATCACGTTGGATAAAAGTATATGGATGGGATATATTAAAGATT
ATGAAGGTGGTACGCTGATGCAATGTAACATGGCAATTCCCGGtggcggccgcatcttttacccatacgatgttcctgac
tatgcgggctatccctatgacgtcccggactatgcaggatcctatccatatgacgttccagattacgctgctcagtgcgg
ccgctctagctagaactagtggatcccccGATACCGTCGACCTGCAGGCATGCAAGCTTGGCGTAATCATGGTCATAGCT
GTTTCCTGTGTGAAATTGTTATCCGCTCACAATTCCACACAACATACGAGCCGGAAGCATAAAGTGTAAAGCCTGGGGTG
CCTAATGAGTGAGCTAACTCACATTAATTGCGTTGCGCTCACTGCCCGCTTTCCAGTCGGGAAACCTGTCGTGCCAGCTG
CATTAATGAATCGGCCAACGCGCGGGGAGAGGCGGTTTGCGTATTGGGCGC
//

FIG. 16 Cont.

5988-7613: Gal4 DBD-H3-Gcn5(F221A)-HA
5988-6428: Gal4 DBD (amino acids 1-147)
6507-6683: H3 (amino acids 1-59)
6762-7466: Gcn5 (amino acids 18-252)
7371-7373: F221A
7500-7589: trimeric HA
...-...: 2μ
...-...: LEU2

Translation: Gal4-DBD-H3-Gcn5-HA
MKLLSSIEQACDICRLKKLKCSKEKPKCAKCLKNNWECRYSPKTKRSPLTRAHLTEVESRLERLEQLFLLIFPREDLDMI
LKMDSLQDIKALLTGLFVQDNVNKDAVTDRLASVETDMPLTLRQHRISATSSSEESSNKGQRQLTVSNYLFDDEDTPPNP
KKEIEFQLTTMFMARTKQTARKSTGGKAPRKQLASKAARKSAPSTGGVKKPHRYKPGTVALREIRRFQKSTEPGSPILGY
WKGRRDHPPKSDLIEGRGDPEVKRVKLENNVEEIQPEQAETNKQEGTDKENKGKFEKETERIGGSEVVTDVEKGIVKFEF
DGVEYTFKERPSVVEENEGKIEFRVVNNDNTKENMMVLTGLKNIFQKQLPKMPKEYIARLVYDRSHLSMAVIRKPLTVVG
GITYRPFDKREFAEIVFCAISSTEQVRGYGAHLMNHLKDYVRNTSNIKYFLTYADNYAIGYAKKQGFTKEITLDKSIWMG
YIKDYEGGTLMQCNMAIPGGGRIFYPYDVPDYAGYPYDVPDYAGSYPYDVPDYAAQCGRSS

; DNA sequence pdg6 7891 b.p. complete sequence
;
TCTTCCGCTTCCTCGCTCACTGACTCGCTGCGCTCGGTCGTTCGGCTGCGGCGAGCGGTATCAGCTCACTCAAAGGCGGT
AATACGGTTATCCACAGAATCAGGGGATAACGCAGGAAAGAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTA
AAAAGGCCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGG
TGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCCCTGGAAGCTCCCTCGTGCGCTCTCCTGTTCCGACCCT
GCCGCTTACCGGATACCTGTCCGCCTTTCTCCCTTCGGGAAGCGTGGCGCTTTCTCATAGCTCACGCTGTAGGTATCTCA
GTTCGGTGTAGGTCGTTCGCTCCAAGCTGGGCTGTGTGCACGAACCCCCCGTTCAGCCCGACCGCTGCGCCTTATCCGGT
AACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGC
GAGGTATGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGGACAGTATTTGGTATCT
GCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGT
GGTTTTTTTGTTTGCAAGCAGCAGATTACGCGCAGAAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGGTC
TGACGCTCAGTGGAACGAAAACTCACGTTAAGGGATTTTGGTCATGAGATTATCAAAAAGGATCTTCACCTAGATCCTTT
TAAATTAAAAATGAAGTTTTAAATCAATCTAAAGTATATATGAGTAAACTTGGTCTGACAGTTACCAATGCTTAATCAGT
GAGGCACCTATCTCAGCGATCTGTCTATTTCGTTCATCCATAGTTGCCTGACTCCCCGTCGTGTAGATAACTACGATACG
GGAGGGCTTACCATCTGGCCCCAGTGCTGCAATGATACCGCGAGACCCACGCTCACCGGCTCCAGATTTATCAGCAATAA
ACCAGCCAGCCGGAAGGGCCGAGCGCAGAAGTGGTCCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGG
GAAGCTAGAGTAAGTAGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCACGCTC
GTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACATGATCCCCCATGTTGTGCAAAAAAG
CGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGAAGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTG
CATAATTCTCTTACTGTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGAGAATA
GTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCGCCACATAGCAGAACTTTAAAAGTGC
TCATCATTGGAAAACGTTCTTCGGGGCGAAAACTCTCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACT
CGTGCACCCAACTGATCTTCAGCATCTTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAATGCCGC
AAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTCCTTTTTCAATATTATTGAAGCATTTATCAGG
GTTATTGTCTCATGAGCGGATACATATTTGAATGTATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCGA
AAAGTGCCACCTGACGTCTAAGAAACCATTATTATCATGACATTAACCTATAAAAATAGGCGTATCACGAGGCCCTTTCG
TCTTCAAGAATTAACTGTGGGAATACTCAGGTATCGTAAGATGCAAGAGTTCGAATCTCTTAGCAACCATTATTTTTTTC
CTCAACATAACGAGAACACACAGGGGCGCTATCGCACAGACAAATTCGATGACTGGAAATTTTTTGTTAATTTCAGAGGT
CGCCGCGCATATACCTTTTTCAACTGAAAAATTGGGAGAAAAAGGAAAGGTGAGAGGCCGGAACCGGCTTTTCATATAGA

FIG. 17

ATAGAGAAGCGTTCATGACTAAATGCTTGCATCACAATACTTGAAGTTGACAATATTATTTAAGGACCTATTGTTTTTTC
CAATAGGTGGTTAGCAATCGTCTTATTCTAACTTTTCTTACCTTTTACATTTCAGCAATATATATATATATTTCAAGGAT
ATACATTCTAATGTCTGCCCCTATGTCTGCCCCTAAGAAGATCGTCGTTTTGCCAGGTGACCACGTTGGTCAAGATCACA
GCCGAAGCCATTAAGGTTCTTAAAGCTATTTCTGATGTTCGTTCCAATGTCAAGTTCGATTTCGAAAATCATTTAATTGG
TGGTGCTGCTATCGATGCTACAGGTGTCCCACTTCCAGATGAGGCGCTGGAAGCCTCCAAGAAGGTTGATGCCGTTTTGT
TAGGTGCTGTGGGTGGTCCTAAATGGGGTACAGGTAGTGTTAGACCTGAACAAGGTTTACTAAAAATCCGTAAAGAACTT
CAATTGTACGCCAACTTAAGACCATGTAACTTTGCATCCGACTCTCTTTTAGACTTATCTCCAATCAAGCCACAATTTGC
TAAAGGTACTGACTTCGTTGTTGTCAGAGAATTAGTGGGAGGTATTTACTTTGGTAAGAGAAAGGAAGACGATGGTGATG
GTGTCGCTTGGGATAGTGAACAATACACCGTTCCAGAAGTGCAAAGAATCACAAGAATGGCCGCTTTCATGGCCCTACAA
CATGAGCCACCATTGCCTATTTGGTCCTTGGATAAAGCTAATGTTTTGGCCTCTTCAAGATTATGGAGAAAAACTGTGGA
GGAAACCATCAAGAACGAATTTCCTACATTGAAGGTTCAACATCAATTGATTGATTCTGCCGCCATGATCCTAGTTAAGA
ACCCAACCCACCTAAATGGTATTATAATCACCAGCAACATGTTTGGTGATATCATCTCCGATGAAGCCTCCGTTATCCCA
GGTTCCTTGGGTTTGTTGCCATCTGCGTCCTTGGCCTCTTTGCCAGACAAGAACACCGCATTTGGTTTGTACGAACCATG
CCACGGTTCTGCTCCAGATTTGCCAAAGAATAAGGTTGACCCTATCGCCACTATCTTGTCTGCTGCAATGATGTTGAAAT
TGTCATTGAACTTGCCTGAAGAAGGTAAGGCCATTGAAGATGCAGTTAAAAAGGTTTTGGATGCAGGTATCAGAACTGGT
GATTTAGGTGGTTCCAACAGTACCACCGAAGTCGGTGATGCTGTCGCCGAAGAAGTTAAGAAAATCCTTGCTTAAAAAGA
TTCTCTTTTTTTATGATATTTGTACATAAACTTTATAAATGAAATTCATAATAGAAACGACACGAAATTACAAAATGGAA
TATGTTCATAGGGTAGAATTAATTCTCATGTTTGACAGCTTATCATCGGATCGATCCAATATCAAAGGAAATGATAGCAT
TGAAGGATGAGACTAATCCAATTGAGGAGTGGCAGCATATAGAACAGCTAAAGGGTAGTGCTGAAGGAAGCATACGATAC
CCCGCATGGAATGGGATAATATCACAGGAGGTACTAGACTACCTTTCATCCTACATAAATAGACGCATATAAGTACGCAT
TTAAGCATAAACACGCACTATGCCGTTCTTCTCATGTATATATATATACAGGCAACACGCAGATATAGGTGCGACGTGAA
CAGTGAGCTGTATGTGCGCAGCTCGCGTTGCATTTTCGGAAGCGCTCGTTTTCGGAAACGCTTTGAAGTTCCTATTCCGA
AGTTCCTATTCTCTAGCTAGAAAGTATAGGAACTTCAGAGCGCTTTTGAAAACCAAAAGCGCTCTGAAGACGCACTTTCA
AAAAACCAAAAACGCACCGGACTGTAACGAGCTACTAAAATATTGCGAATACCGCTTCCACAAACATTGCTCAAAAGTAT
CTCTTTGCTATATATCTCTGTGCTATATCCCTATATAACCTACCCATCCACCTTTCGCTCCTTGAACTTGCATCTAAACT
CGACCTCTACATTTTTTATGTTTATCTCTAGTATTACTCTTTAGACAAAAAAATTGTAGTAAGAACTATTCATAGAGTGA
ATCGAAAACAATACGAAAATGTAAACATTTCCTATACGTAGTATATAGAGACAAAATAGAAGAAACCGTTCATAATTTTC
TGACCAATGAAGAATCATCAACGCTATCACTTTCTGTTCACAAAGTATGCGCAATCCACATCGGTATAGAATATAATCGG
GGATGCCTTTATCTTGAAAAAATGCACCCGCAGCTTCGCTAGTAATCAGTAAACGCGGGAAGTGGAGTCAGGCTTTTTTT
ATGGAAGAGAAAATAGACACCAAAGTAGCCTTCTTCTAACCTTAACGGACCTACAGTGCAAAAAGTTATCAAGAGACTGC
ATTATAGAGCGCACAAAGGAGAAAAAAAGTAATCTAAGATGCTTTGTTAGAAAAATAGCGCTCTCGGGATGCATTTTTGT
AGAACAAAAAAGAAGTATAGATTCTTTGTTGGTAAAATAGCGCTCTCGCGTTGCATTTCTGTTCTGTAAAAATGCAGCTC
AGATTCTTTGTTTGAAAAATTAGCGCTCTCGCGTTGCATTTTTGTTTTACAAAAATGAAGCACAGATTCTTCGTTGGTAA
AATAGCGCTTTCGCGTTGCATTTCTGTTCTGTAAAAATGCAGCTCAGATTCTTTGTTTGAAAAATTAGCGCTCTCGCGTT
GCATTTTTGTTCTACAAAATGAAGCACAGATGCTTCGTTAACAAAGATATGCTATTGAAGTGCAAGATGGAAACGCAGAA
AATGAACCGGGGATGCGACGTGCAAGATTACCTATGCAATAGATGCAATAGTTTCTCCAGGAACCGAAATACATACATTG
TCTTCCGTAAAGCGCTAGACTATATATTATTATACAGGTTCAAATATACTATCTGTTTCAGGGAAAACTCCCAGGTTCGG
ATGTTCAAAATTCAATGATGGGTAACAAGTACGATCCGATATATGCGGTGTGAAATACCGCACAGATGCGTAAGGAGAAA
ATACCGCATCAGGCGCCATTCGCCATTCAGGCTGCGCAACTGTTGGGAAGGGCGATCGGTGCGGGCCTCTTCGCTATTAC
GCCAGCTGGCGAAAGGGGGATGTGCTGCAAGGCGATTAAGTTGGGTAACGCCAGGGTTTTCCCAGTCACGACGTTGTAAA
ACGACGGCCAGTGAATTcatgtaggtggcggaggggagatatacaatagaacagataccagacaagacataatgggctaa
acaagactacaccaattacactgcctcattgatggtggtacataacgaactaatactgtagccctagacttgatagccat
catcatatcgaagtttcactacccttttccatttgccatctattgaagtaataataggcgcatgcaacttcttttcttt
ttttttcttttctctctcccccgttgttgtctcaccatatccgcaatgacaaaaaaatgatggaagacactaaaggaaaa
aattaacgacaaagacagcaccaacagatgtcgttgttccagagctgatgaggggtatctcgaagcacacgaaacttttt
ccttccttcattgacctgcaattattaatcttttgtttcctcgtcattgttctcgttccctttcttccttgtttcttttt
ctgcacaatatttcaagctataccaagcatacaatcaactccaagcttgaagcaagcctcctgaaagATGAAGCTACTGT
CTTCTATCGAACAAGCATGCGATATTTGCCGACTTAAAAAGCTCAAGTGCTCCAAAGAAAAACCGAAGTGCGCCAAGTGT
CTGAAGAACAACTGGGAGTGTCGCTACTCTCCCAAAACCAAAAGGTCTCCGCTGACTAGGGCACATCTGACAGAAGTGGA
ATCAAGGCTAGAAAGACTGGAACAGCTATTTCTACTGATTTTTCCTCGAGAAGACCTTGACATGATTTTGAAAATGGATT
CTTTACAGGATATAAAAGCATTGTTAACAGGATTATTTGTACAAGATAATGTGAATAAAGATGCCGTCACAGATAGATTG
GCTTCAGTGGAGACTGATATGCCTCTAACATTGAGACAGCATAGAATAAGTGCGACATCATCATCGGAAGAGAGTAGTAA
CAAAGGTCAAAGACAGTTGACTGTATCGAACTATCTATTCGATGATGAAGATACCCCACCAAACCCAAAAAAAGAGATCG
AATTCCAGCTGACCACCATGTTTatggccagaacaaagcaaacagcaagaaagtccactggtggtaaggccccaagaaag

FIG. 17 Cont.

caattagcttctaaggctgccagaaaatccgccccatctaccggtggtgttaagaagcctcacagatataagccaggtac
tgttgctttgagagaaatcagaagattccaaaaatctactgaaCCCgggtcccctatactaggttattggaaaggtcgac
gcgaccatcctccaaaatcggatctgatcgaaggtcgtggaGATCCCGAAGTTAAACGGGTAAAATTAGAAAACAACGTT
GAAGAAATACAACCTGAGCAGGCTGAGACCAATAAACAAGAGGGCACCGATAAAGAGAATAAAGGAAAGTTCGAGAAAGA
AACTGAGAGAATAGGAGGATCTGAAGTGGTTACAGATGTGGAAAAAGGAATTGTCAAATTTGAATTTGATGGTGTTGAAT
ACACATTCAAAGAGAGACCCAGTGTCGTAGAGGAAAATGAAGGTAAAATTGAGTTTAGGGTGGTGAATAATGATAATACT
AAAGAAAACATGATGGTCCTAACTGGATTAAAAAACATTTTTCAAAAGCAATTACCAAAAATGCCCAAAGAATACATTGC
CAGGTTAGTCTATGATCGAAGTCATCTTTCCATGGCTGTCATTAGGAAGCCATTGACTGTCGTAGGTGGCATAACATATC
GACCTTTCGATAAGAGAGAATTCGCAGAAATTGTTTTCTGTGCCATCAGTTCGACGGAACAGGTACGCGGTTATGGTGCG
CATCTAATGAATCACTTAAAAGACTATGTTAGAAATACCTCGAACATAAAATATTTTTTGACATATGCAGATAATTACGC
TATTGGATACgctAAAAAGCAAGGCTTCACTAAAGAAATCACGTTGGATAAAAGTATATGGATGGGATATATTAAAGATT
ATGAAGGTGGTACGCTGATGCAATGTAACATGGCAATTCCCGGtggcggccgcatcttttacccatacgatgttcctgac
tatgcgggctatccctatgacgtcccggactatgcaggatcctatccatatgacgttccagattacgctgctcagtgcgg
ccgctctagctagaactagtggatcccccGATACCGTCGACCTGCAGGCATGCAAGCTTGGCGTAATCATGGTCATAGCT
GTTTCCTGTGTGAAATTGTTATCCGCTCACAATTCCACACAACATACGAGCCGGAAGCATAAAGTGTAAAGCCTGGGGTG
CCTAATGAGTGAGCTAACTCACATTAATTGCGTTGCGCTCACTGCCCGCTTTCCAGTCGGGAAACCTGTCGTGCCAGCTG
CATTAATGAATCGGCCAACGCGCGGGGAGAGGCGGTTTGCGTATTGGGCGC
//

FIG. 17 Cont.

5988-7517: Gal4 DBD-H3-Gcn5-HA
5988-6428: Gal4 DBD (amino acids 1-147)
6501-6587: H4 (amino acids 1-29)
6666-7370: Gcn5 (amino acids 18-252)
7404-7493: trimeric HA
...-...: 2μ
...-...: LEU2

Translation: Gal4 DBD-H4-Gcn5-HA
MKLLSSIEQACDICRLKKLKCSKEKPKCAKCLKNNWECRYSPKTKRSPLTRAHLTEVESRLERLEQLFLLIFPREDLDMI
LKMDSLQDIKALLTGLFVQDNVNKDAVTDRLASVETDMPLTLRQHRISATSSSEESSNKGQRQLTVSNYLFDDEDTPPNP
KKEIEFQLTTMSGRGKGGKGLGKGGAKRHRKILRDNIQGISGSPILGYWKGRRDHPPKSDLIEGRGDPEVKRVKLENNVE
EIQPEQAETNKQEGTDKENKGKFEKETERIGGSEVVTDVEKGIVKFEFDGVEYTFKERPSVVEENEGKIEFRVVNNDNTK
ENMMVLTGLKNIFQKQLPKMPKEYIARLVYDRSHLSMAVIRKPLTVVGGITYRPFDKREFAEIVFCAISSTEQVRGYGAH
LMNHLKDYVRNTSNIKYFLTYADNYAIGYFKKQGFTKEITLDKSIWMGYIKDYEGGTLMQCSMAIPGGGRIFYPYDVPDY
AGYPYDVPDYAGSYPYDVPDYAAQCGRSS

; DNA sequence pdg7 7795 b.p. complete sequence
;
TCTTCCGCTTCCTCGCTCACTGACTCGCTGCGCTCGGTCGTTCGGCTGCGGCGAGCGGTATCAGCTCACTCAAAGGCGGT
AATACGGTTATCCACAGAATCAGGGGATAACGCAGGAAAGAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTA
AAAAGGCCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGG
TGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCCCTGGAAGCTCCCTCGTGCGCTCTCCTGTTCCGACCCT
GCCGCTTACCGGATACCTGTCCGCCTTTCTCCCTTCGGGAAGCGTGGCGCTTTCTCATAGCTCACGCTGTAGGTATCTCA
GTTCGGTGTAGGTCGTTCGCTCCAAGCTGGGCTGTGTGCACGAACCCCCCGTTCAGCCCGACCGCTGCGCCTTATCCGGT
AACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGC
GAGGTATGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGGACAGTATTTGGTATCT
GCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGT
GGTTTTTTTGTTTGCAAGCAGCAGATTACGCGCAGAAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGGTC
TGACGCTCAGTGGAACGAAAACTCACGTTAAGGGATTTTGGTCATGAGATTATCAAAAAGGATCTTCACCTAGATCCTTT
TAAATTAAAAATGAAGTTTTAAATCAATCTAAAGTATATATGAGTAAACTTGGTCTGACAGTTACCAATGCTTAATCAGT
GAGGCACCTATCTCAGCGATCTGTCTATTTCGTTCATCCATAGTTGCCTGACTCCCCGTCGTGTAGATAACTACGATACG
GGAGGGCTTACCATCTGGCCCCAGTGCTGCAATGATACCGCGAGACCCACGCTCACCGGCTCCAGATTTATCAGCAATAA
ACCAGCCAGCCGGAAGGGCCGAGCGCAGAAGTGGTCCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGG
GAAGCTAGAGTAAGTAGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCACGCTC
GTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACATGATCCCCCATGTTGTGCAAAAAAG
CGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGAAGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTG
CATAATTCTCTTACTGTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGAGAATA
GTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCGCCACATAGCAGAACTTTAAAAGTGC
TCATCATTGGAAAACGTTCTTCGGGGCGAAAACTCTCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACT
CGTGCACCCAACTGATCTTCAGCATCTTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAATGCCGC
AAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTCCTTTTTCAATATTATTGAAGCATTTATCAGG
GTTATTGTCTCATGAGCGGATACATATTTGAATGTATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCGA
AAAGTGCCACCTGACGTCTAAGAAACCATTATTATCATGACATTAACCTATAAAAATAGGCGTATCACGAGGCCCTTTCG
TCTTCAAGAATTAACTGTGGGAATACTCAGGTATCGTAAGATGCAAGAGTTCGAATCTCTTAGCAACCATTATTTTTTTC
CTCAACATAACGAGAACACACAGGGGCGCTATCGCACAGACAAATTCGATGACTGGAAATTTTTTGTTAATTTCAGAGGT
CGCCGCGCATATACCTTTTTCAACTGAAAAATTGGGAGAAAAAGGAAAGGTGAGAGGCCGGAACCGGCTTTTCATATAGA
ATAGAGAAGCGTTCATGACTAAATGCTTGCATCACAATACTTGAAGTTGACAATATTATTTAAGGACCTATTGTTTTTTC

FIG. 18

CAATAGGTGGTTAGCAATCGTCTTATTCTAACTTTTCTTACCTTTTACATTTCAGCAATATATATATATATTTCAAGGAT
ATACATTCTAATGTCTGCCCCTATGTCTGCCCCTAAGAAGATCGTCGTTTTGCCAGGTGACCACGTTGGTCAAGATCACA
GCCGAAGCCATTAAGGTTCTTAAAGCTATTTCTGATGTTCGTTCCAATGTCAAGTTCGATTTCGAAAATCATTTAATTGG
TGGTGCTGCTATCGATGCTACAGGTGTCCCACTTCCAGATGAGGCGCTGGAAGCCTCCAAGAAGGTTGATGCCGTTTTGT
TAGGTGCTGTGGGTGGTCCTAAATGGGGTACAGGTAGTGTTAGACCTGAACAAGGTTTACTAAAAATCCGTAAAGAACTT
CAATTGTACGCCAACTTAAGACCATGTAACTTTGCATCCGACTCTCTTTTAGACTTATCTCCAATCAAGCCACAATTTGC
TAAAGGTACTGACTTCGTTGTTGTCAGAGAATTAGTGGGAGGTATTTACTTTGGTAAGAGAAAGGAAGACGATGGTGATG
GTGTCGCTTGGGATAGTGAACAATACACCGTTCCAGAAGTGCAAAGAATCACAAGAATGGCCGCTTTCATGGCCCTACAA
CATGAGCCACCATTGCCTATTTGGTCCTTGGATAAAGCTAATGTTTTGGCCTCTTCAAGATTATGGAGAAAAACTGTGGA
GGAAACCATCAAGAACGAATTTCCTACATTGAAGGTTCAACATCAATTGATTGATTCTGCCGCCATGATCCTAGTTAAGA
ACCCAACCCACCTAAATGGTATTATAATCACCAGCAACATGTTTGGTGATATCATCTCCGATGAAGCCTCCGTTATCCCA
GGTTCCTTGGGTTTGTTGCCATCTGCGTCCTTGGCCTCTTTGCCAGACAAGAACACCGCATTTGGTTTGTACGAACCATG
CCACGGTTCTGCTCCAGATTTGCCAAAGAATAAGGTTGACCCTATCGCCACTATCTTGTCTGCTGCAATGATGTTGAAAT
TGTCATTGAACTTGCCTGAAGAAGGTAAGGCCATTGAAGATGCAGTTAAAAAGGTTTTGGATGCAGGTATCAGAACTGGT
GATTTAGGTGGTTCCAACAGTACCACCGAAGTCGGTGATGCTGTCGCCGAAGAAGTTAAGAAAATCCTTGCTTAAAAAGA
TTCTCTTTTTTTATGATATTTGTACATAAACTTTATAAATGAAATTCATAATAGAAACGACACGAAATTACAAAATGGAA
TATGTTCATAGGGTAGAATTAATTCTCATGTTTGACAGCTTATCATCGGATCGATCCAATATCAAAGGAAATGATAGCAT
TGAAGGATGAGACTAATCCAATTGAGGAGTGGCAGCATATAGAACAGCTAAAGGGTAGTGCTGAAGGAAGCATACGATAC
CCCGCATGGAATGGGATAATATCACAGGAGGTACTAGACTACCTTTCATCCTACATAAATAGACGCATATAAGTACGCAT
TTAAGCATAAACACGCACTATGCCGTTCTTCTCATGTATATATATATACAGGCAACACGCAGATATAGGTGCGACGTGAA
CAGTGAGCTGTATGTGCGCAGCTCGCGTTGCATTTTCGGAAGCGCTCGTTTTCGGAAACGCTTTGAAGTTCCTATTCCGA
AGTTCCTATTCTCTAGCTAGAAAGTATAGGAACTTCAGAGCGCTTTTGAAAACCAAAAGCGCTCTGAAGACGCACTTTCA
AAAAACCAAAAACGCACCGGACTGTAACGAGCTACTAAAATATTGCGAATACCGCTTCCACAAACATTGCTCAAAAGTAT
CTCTTTGCTATATATCTCTGTGCTATATCCCTATATAACCTACCCATCCACCTTTCGCTCCTTGAACTTGCATCTAAACT
CGACCTCTACATTTTTTATGTTTATCTCTAGTATTACTCTTTAGACAAAAAAATTGTAGTAAGAACTATTCATAGAGTGA
ATCGAAAACAATACGAAAATGTAAACATTTCCTATACGTAGTATATAGAGACAAAATAGAAGAAACCGTTCATAATTTTC
TGACCAATGAAGAATCATCAACGCTATCACTTTCTGTTCACAAAGTATGCGCAATCCACATCGGTATAGAATATAATCGG
GGATGCCTTTATCTTGAAAAAATGCACCCGCAGCTTCGCTAGTAATCAGTAAACGCGGGAAGTGGAGTCAGGCTTTTTTT
ATGGAAGAGAAAATAGACACCAAAGTAGCCTTCTTCTAACCTTAACGGACCTACAGTGCAAAAAGTTATCAAGAGACTGC
ATTATAGAGCGCACAAAGGAGAAAAAAAGTAATCTAAGATGCTTTGTTAGAAAAATAGCGCTCTCGGGATGCATTTTTGT
AGAACAAAAAAGAAGTATAGATTCTTTGTTGGTAAAATAGCGCTCTCGCGTTGCATTTCTGTTCTGTAAAAATGCAGCTC
AGATTCTTTGTTTGAAAAATTAGCGCTCTCGCGTTGCATTTTTGTTTTACAAAAATGAAGCACAGATTCTTCGTTGGTAA
AATAGCGCTTTCGCGTTGCATTTCTGTTCTGTAAAAATGCAGCTCAGATTCTTTGTTTGAAAAATTAGCGCTCTCGCGTT
GCATTTTTGTTCTACAAAATGAAGCACAGATGCTTCGTTAACAAAGATATGCTATTGAAGTGCAAGATGGAAACGCAGAA
AATGAACCGGGGATGCGACGTGCAAGATTACCTATGCAATAGATGCAATAGTTTCTCCAGGAACCGAAATACATACATTG
TCTTCCGTAAAGCGCTAGACTATATATTATTATACAGGTTCAAATATACTATCTGTTTCAGGGAAAACTCCCAGGTTCGG
ATGTTCAAAATTCAATGATGGGTAACAAGTACGATCCGATATATGCGGTGTGAAATACCGCACAGATGCGTAAGGAGAAA
ATACCGCATCAGGCGCCATTCGCCATTCAGGCTGCGCAACTGTTGGGAAGGGCGATCGGTGCGGGCCTCTTCGCTATTAC
GCCAGCTGGCGAAAGGGGGATGTGCTGCAAGGCGATTAAGTTGGGTAACGCCAGGGTTTTCCCAGTCACGACGTTGTAAA
ACGACGGCCAGTGAATTcatgtaggtggcggaggggagatatacaatagaacagataccagacaagacataatgggctaa
acaagactacaccaattacactgcctcattgatggtggtacataacgaactaatactgtagccctagacttgatagccat
catcatatcgaagtttcactacccttttccatttgccatctattgaagtaataataggcgcatgcaacttcttttcttt
ttttttctttctctctccccgttgttgtctcaccatatccgcaatgacaaaaaaatgatggaagacactaaaggaaaa
aattaacgacaaagacagcaccaacagatgtcgttgttccagagctgatgaggggtatctcgaagcacacgaaacttttt
ccttccttcattgacctgcaattattaatcttttgtttcctcgtcattgttctcgttccctttcttccttgtttcttttt
ctgcacaatatttcaagctataccaagcatacaatcaactccaagcttgaagcaagcctcctgaaagATGAAGCTACTGT
CTTCTATCGAACAAGCATGCGATATTTGCCGACTTAAAAAGCTCAAGTGCTCCAAAGAAAAACCGAAGTGCGCCAAGTGT
CTGAAGAACAACTGGGAGTGTCGCTACTCTCCCAAAACCAAAAGGTCTCCGCTGACTAGGGCACATCTGACAGAAGTGGA
ATCAAGGCTAGAAAGACTGGAACAGCTATTTCTACTGATTTTTCCTCGAGAAGACCTTGACATGATTTTGAAAATGGATT
CTTTACAGGATATAAAAGCATTGTTAACAGGATTATTTGTACAAGATAATGTGAATAAAGATGCCGTCACAGATAGATTG
GCTTCAGTGGAGACTGATATGCCTCTAACATTGAGACAGCATAGAATAAGTGCGACATCATCATCGGAAGAGAGTAGTAA
CAAAGGTCAAAGACAGTTGACTGTATCGAACTATCTATTCGATGATGAAGATACCCCACCAAACCCAAAAAAAGAGATCG
AATTCCAGCTGACCACCATGTCCGGTAGAGGTAAAGGTGGTAAAGGTCTAGGAAAAGGTGGTGCCAAGCGTCACAGAAAG
ATTCTAAGAGATAACATCCAAGGTATTTCCgggtcccctatactaggttattggaaaggtcgacgcgaccatcctccaaa

FIG. 18 Cont.

atcggatctgatcgaaggtcgtggaGATCCCGAAGTTAAACGGGTAAAATTAGAAAACAACGTTGAAGAAATACAACCTG
AGCAGGCTGAGACCAATAAACAAGAGGGCACCGATAAAGAGAATAAAGGAAAGTTCGAGAAAGAAACTGAGAGAATAGGA
GGATCTGAAGTGGTTACAGATGTGGAAAAAGGAATTGTCAAATTTGAATTTGATGGTGTTGAATACACATTCAAAGAGAG
ACCCAGTGTCGTAGAGGAAAATGAAGGTAAAATTGAGTTTAGGGTGGTGAATAATGATAATACTAAAGAAAACATGATGG
TCCTAACTGGATTAAAAAACATTTTTCAAAAGCAATTACCAAAAATGCCCAAAGAATACATTGCCAGGTTAGTCTATGAT
CGAAGTCATCTTTCCATGGCTGTCATTAGGAAGCCATTGACTGTCGTAGGTGGCATAACATATCGACCTTTCGATAAGAG
AGAATTCGCAGAAATTGTTTTCTGTGCCATCAGTTCGACGGAACAGGTACGCGGTTATGGTGCGCATCTAATGAATCACT
TAAAAGACTATGTTAGAAATACCTCGAACATAAAATATTTTTTGACATATGCAGATAATTACGCTATTGGATACTTTAAA
AAGCAAGGCTTCACTAAAGAAATCACGTTGGATAAAAGTATATGGATGGGATATATTAAAGATTATGAAGGTGGTACGCT
GATGCAATGTtccATGGCAATTCCCGGtggcggccgcatcttttacccatacgatgttcctgactatgcgggctatccct
atgacgtcccggactatgcaggatcctatccatatgacgttccagattacgctgctcagtgcggccgctctagctagaac
tagtggatcccccGATACCGTCGACCTGCAGGCATGCAAGCTTGGCGTAATCATGGTCATAGCTGTTTCCTGTGTGAAAT
TGTTATCCGCTCACAATTCCACACAACATACGAGCCGGAAGCATAAAGTGTAAAGCCTGGGGTGCCTAATGAGTGAGCTA
ACTCACATTAATTGCGTTGCGCTCACTGCCCGCTTTCCAGTCGGGAAACCTGTCGTGCCAGCTGCATTAATGAATCGGCC
AACGCGCGGGGAGAGGCGGTTTGCGTATTGGGCGC
//

FIG. 18 Cont.

5988-7517: Gal4 DBD-H3-Gcn5-HA
5988-6428: Gal4 DBD (amino acids 1-147)
6501-6587: H4 (amino acids 1-29)
6666-7370: Gcn5 (amino acids 18-252)
7275-7277: F221A
7404-7493: trimeric HA
...-...: 2μ
...-...: LEU2

Translation: Gal4 DBD-H4-Gcn5 F221A-HA
MKLLSSIEQACDICRLKKLKCSKEKPKCAKCLKNNWECRYSPKTKRSPLTRAHLTEVESRLERLEQLFLLIFPREDLDMI
LKMDSLQDIKALLTGLFVQDNVNKDAVTDRLASVETDMPLTLRQHRISATSSSEESSNKGQRQLTVSNYLFDDEDTPPNP
KKEIEFQLTTMSGRGKGGKGLGKGGAKRHRKILRDNIQGISGSPILGYWKGRRDHPPKSDLIEGRGDPEVKRVKLENNVE
EIQPEQAETNKQEGTDKENKGKFEKETERIGGSEVVTDVEKGIVKFEFDGVEYTFKERPSVVEENEGKIEFRVVNNDNTK
ENMMVLTGLKNIFQKQLPKMPKEYIARLVYDRSHLSMAVIRKPLTVVGGITYRPFDKREFAEIVFCAISSTEQVRGYGAH
LMNHLKDYVRNTSNIKYFLTYADNYAIGYAKKQGFTKEITLDKSIWMGYIKDYEGGTLMQCSMAIPGGGRIFYPYDVPDY
AGYPYDVPDYAGSYPYDVPDYAAQCGRSS

; DNA sequence pdg7 7795 b.p. complete sequence
;
TCTTCCGCTTCCTCGCTCACTGACTCGCTGCGCTCGGTCGTTCGGCTGCGGCGAGCGGTATCAGCTCACTCAAAGGCGGT
AATACGGTTATCCACAGAATCAGGGGATAACGCAGGAAAGAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTA
AAAAGGCCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGG
TGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCCCTGGAAGCTCCCTCGTGCGCTCTCCTGTTCCGACCCT
GCCGCTTACCGGATACCTGTCCGCCTTTCTCCCTTCGGGAAGCGTGGCGCTTTCTCATAGCTCACGCTGTAGGTATCTCA
GTTCGGTGTAGGTCGTTCGCTCCAAGCTGGGCTGTGTGCACGAACCCCCCGTTCAGCCCGACCGCTGCGCCTTATCCGGT
AACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGC
GAGGTATGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGGACAGTATTTGGTATCT
GCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGT
GGTTTTTTTGTTTGCAAGCAGCAGATTACGCGCAGAAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGGTC
TGACGCTCAGTGGAACGAAAACTCACGTTAAGGGATTTTGGTCATGAGATTATCAAAAAGGATCTTCACCTAGATCCTTT
TAAATTAAAAATGAAGTTTTAAATCAATCTAAAGTATATATGAGTAAACTTGGTCTGACAGTTACCAATGCTTAATCAGT
GAGGCACCTATCTCAGCGATCTGTCTATTTCGTTCATCCATAGTTGCCTGACTCCCCGTCGTGTAGATAACTACGATACG
GGAGGGCTTACCATCTGGCCCCAGTGCTGCAATGATACCGCGAGACCCACGCTCACCGGCTCCAGATTTATCAGCAATAA
ACCAGCCAGCCGGAAGGGCCGAGCGCAGAAGTGGTCCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGG
GAAGCTAGAGTAAGTAGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCACGCTC
GTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACATGATCCCCCATGTTGTGCAAAAAAG
CGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGAAGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTG
CATAATTCTCTTACTGTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGAGAATA
GTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCGCCACATAGCAGAACTTTAAAAGTGC
TCATCATTGGAAAACGTTCTTCGGGGCGAAAACTCTCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACT
CGTGCACCCAACTGATCTTCAGCATCTTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAATGCCGC
AAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTCCTTTTTCAATATTATTGAAGCATTTATCAGG
GTTATTGTCTCATGAGCGGATACATATTTGAATGTATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCGA
AAAGTGCCACCTGACGTCTAAGAAACCATTATTATCATGACATTAACCTATAAAAATAGGCGTATCACGAGGCCCTTTCG
TCTTCAAGAATTAACTGTGGGAATACTCAGGTATCGTAAGATGCAAGAGTTCGAATCTCTTAGCAACCATTATTTTTTTC
CTCAACATAACGAGAACACACAGGGGCGCTATCGCACAGACAAATTCGATGACTGGAAATTTTTTGTTAATTTCAGAGGT

FIG. 19

CGCCGCGCATATACCTTTTTCAACTGAAAAATTGGGAGAAAAAGGAAAGGTGAGAGGCCGGAACCGGCTTTTCATATAGA
ATAGAGAAGCGTTCATGACTAAATGCTTGCATCACAATACTTGAAGTTGACAATATTATTTAAGGACCTATTGTTTTTTC
CAATAGGTGGTTAGCAATCGTCTTATTCTAACTTTTCTTACCTTTTACATTTCAGCAATATATATATATATTTCAAGGAT
ATACATTCTAATGTCTGCCCCTATGTCTGCCCCTAAGAAGATCGTCGTTTTGCCAGGTGACCACGTTGGTCAAGATCACA
GCCGAAGCCATTAAGGTTCTTAAAGCTATTTCTGATGTTCGTTCCAATGTCAAGTTCGATTTCGAAAATCATTTAATTGG
TGGTGCTGCTATCGATGCTACAGGTGTCCCACTTCCAGATGAGGCGCTGGAAGCCTCCAAGAAGGTTGATGCCGTTTTGT
TAGGTGCTGTGGGTGGTCCTAAATGGGGTACAGGTAGTGTTAGACCTGAACAAGGTTTACTAAAAATCCGTAAAGAACTT
CAATTGTACGCCAACTTAAGACCATGTAACTTTGCATCCGACTCTCTTTTAGACTTATCTCCAATCAAGCCACAATTTGC
TAAAGGTACTGACTTCGTTGTTGTCAGAGAATTAGTGGGAGGTATTTACTTTGGTAAGAGAAAGGAAGACGATGGTGATG
GTGTCGCTTGGGATAGTGAACAATACACCGTTCCAGAAGTGCAAAGAATCACAAGAATGGCCGCTTTCATGGCCCTACAA
CATGAGCCACCATTGCCTATTTGGTCCTTGGATAAAGCTAATGTTTTGGCCTCTTCAAGATTATGGAGAAAAACTGTGGA
GGAAACCATCAAGAACGAATTTCCTACATTGAAGGTTCAACATCAATTGATTGATTCTGCCGCCATGATCCTAGTTAAGA
ACCCAACCCACCTAAATGGTATTATAATCACCAGCAACATGTTTGGTGATATCATCTCCGATGAAGCCTCCGTTATCCCA
GGTTCCTTGGGTTTGTTGCCATCTGCGTCCTTGGCCTCTTTGCCAGACAAGAACACCGCATTTGGTTTGTACGAACCATG
CCACGGTTCTGCTCCAGATTTGCCAAAGAATAAGGTTGACCCTATCGCCACTATCTTGTCTGCTGCAATGATGTTGAAAT
TGTCATTGAACTTGCCTGAAGAAGGTAAGGCCATTGAAGATGCAGTTAAAAAGGTTTTGGATGCAGGTATCAGAACTGGT
GATTTAGGTGGTTCCAACAGTACCACCGAAGTCGGTGATGCTGTCGCCGAAGAAGTTAAGAAAATCCTTGCTTAAAAAGA
TTCTCTTTTTTTATGATATTTGTACATAAACTTTATAAATGAAATTCATAATAGAAACGACACGAAATTACAAAATGGAA
TATGTTCATAGGGTAGAATTAATTCTCATGTTTGACAGCTTATCATCGGATCGATCCAATATCAAAGGAAATGATAGCAT
TGAAGGATGAGACTAATCCAATTGAGGAGTGGCAGCATATAGAACAGCTAAAGGGTAGTGCTGAAGGAAGCATACGATAC
CCCGCATGGAATGGGATAATATCACAGGAGGTACTAGACTACCTTTCATCCTACATAAATAGACGCATATAAGTACGCAT
TTAAGCATAAACACGCACTATGCCGTTCTTCTCATGTATATATATATACAGGCAACACGCAGATATAGGTGCGACGTGAA
CAGTGAGCTGTATGTGCGCAGCTCGCGTTGCATTTTCGGAAGCGCTCGTTTTCGGAAACGCTTTGAAGTTCCTATTCCGA
AGTTCCTATTCTCTAGCTAGAAAGTATAGGAACTTCAGAGCGCTTTTGAAAACCAAAAGCGCTCTGAAGACGCACTTTCA
AAAAACCAAAAACGCACCGGACTGTAACGAGCTACTAAAATATTGCGAATACCGCTTCCACAAACATTGCTCAAAAGTAT
CTCTTTGCTATATATCTCTGTGCTATATCCCTATATAACCTACCCATCCACCTTTCGCTCCTTGAACTTGCATCTAAACT
CGACCTCTACATTTTTTATGTTTATCTCTAGTATTACTCTTTAGACAAAAAAATTGTAGTAAGAACTATTCATAGAGTGA
ATCGAAAACAATACGAAAATGTAAACATTTCCTATACGTAGTATATAGAGACAAAATAGAAGAAACCGTTCATAATTTTC
TGACCAATGAAGAATCATCAACGCTATCACTTTCTGTTCACAAAGTATGCGCAATCCACATCGGTATAGAATATAATCGG
GGATGCCTTTATCTTGAAAAAATGCACCCGCAGCTTCGCTAGTAATCAGTAAACGCGGGAAGTGGAGTCAGGCTTTTTTT
ATGGAAGAGAAAATAGACACCAAAGTAGCCTTCTTCTAACCTTAACGGACCTACAGTGCAAAAAGTTATCAAGAGACTGC
ATTATAGAGCGCACAAAGGAGAAAAAAAGTAATCTAAGATGCTTTGTTAGAAAAATAGCGCTCTCGGGATGCATTTTTGT
AGAACAAAAAAGAAGTATAGATTCTTTGTTGGTAAAATAGCGCTCTCGCGTTGCATTTCTGTTCTGTAAAAATGCAGCTC
AGATTCTTTGTTTGAAAAATTAGCGCTCTCGCGTTGCATTTTTGTTTTACAAAAATGAAGCACAGATTCTTCGTTGGTAA
AATAGCGCTTTCGCGTTGCATTTCTGTTCTGTAAAAATGCAGCTCAGATTCTTTGTTTGAAAAATTAGCGCTCTCGCGTT
GCATTTTTGTTCTACAAAATGAAGCACAGATGCTTCGTTAACAAAGATATGCTATTGAAGTGCAAGATGGAAACGCAGAA
AATGAACCGGGGATGCGACGTGCAAGATTACCTATGCAATAGATGCAATAGTTTCTCCAGGAACCGAAATACATACATTG
TCTTCCGTAAAGCGCTAGACTATATATTATTATACAGGTTCAAATATACTATCTGTTTCAGGGAAAACTCCCAGGTTCGG
ATGTTCAAAATTCAATGATGGGTAACAAGTACGATCCGATATATGCGGTGTGAAATACCGCACAGATGCGTAAGGAGAAA
ATACCGCATCAGGCGCCATTCGCCATTCAGGCTGCGCAACTGTTGGGAAGGGCGATCGGTGCGGGCCTCTTCGCTATTAC
GCCAGCTGGCGAAAGGGGGATGTGCTGCAAGGCGATTAAGTTGGGTAACGCCAGGGTTTTCCCAGTCACGACGTTGTAAA
ACGACGGCCAGTGAATTcatgtaggtggcggaggggagatatacaatagaacagataccagacaagacataatgggctaa
acaagactacaccaattacactgcctcattgatggtggtacataacgaactaatactgtagccctagacttgatagccat
catcatatcgaagtttcactacccttttccatttgccatctattgaagtaataataggcgcatgcaacttcttttcttt
ttttttcttttctctctcccccgttgttgtctcaccatatccgcaatgacaaaaaaatgatggaagacactaaaggaaaa
aattaacgacaaagacagcaccaacagatgtcgttgttccagagctgatgaggggtatctcgaagcacacgaaacttttt
ccttccttcattgacctgcaattattaatcttttgtttcctcgtcattgttctcgttccctttcttccttgtttcttttt
ctgcacaatatttcaagctataccaagcatacaatcaactccaagcttgaagcaagcctcctgaaagATGAAGCTACTGT
CTTCTATCGAACAAGCATGCGATATTTGCCGACTTAAAAAGCTCAAGTGCTCCAAAGAAAAACCGAAGTGCGCCAAGTGT
CTGAAGAACAACTGGGAGTGTCGCTACTCTCCCAAAACCAAAAGGTCTCCGCTGACTAGGGCACATCTGACAGAAGTGGA
ATCAAGGCTAGAAAGACTGGAACAGCTATTTCTACTGATTTTTCCTCGAGAAGACCTTGACATGATTTTGAAAATGGATT
CTTTACAGGATATAAAAGCATTGTTAACAGGATTATTTGTACAAGATAATGTGAATAAAGATGCCGTCACAGATAGATTG
GCTTCAGTGGAGACTGATATGCCTCTAACATTGAGACAGCATAGAATAAGTGCGACATCATCATCGGAAGAGAGTAGTAA
CAAAGGTCAAAGACAGTTGACTGTATCGAACTATCTATTCGATGATGAAGATACCCCACCAAACCCAAAAAAAGAGATCG

FIG. 19 Cont.

AATTCCAGCTGACCACCATGTCCGGTAGAGGTAAAGGTGGTAAAGGTCTAGGAAAAGGTGGTGCCAAGCGTCACAGAAAG
ATTCTAAGAGATAACATCCAAGGTATTTCCgggtcccctatactaggttattggaaaggtcgacgcgaccatcctccaaa
atcggatctgatcgaaggtcgtggaGATCCCGAAGTTAAACGGGTAAAATTAGAAAACAACGTTGAAGAAATACAACCTG
AGCAGGCTGAGACCAATAAACAAGAGGGCACCGATAAAGAGAATAAAGGAAAGTTCGAGAAAGAAACTGAGAGAATAGGA
GGATCTGAAGTGGTTACAGATGTGGAAAAAGGAATTGTCAAATTTGAATTTGATGGTGTTGAATACACATTCAAAGAGAG
ACCCAGTGTCGTAGAGGAAAATGAAGGTAAAATTGAGTTTAGGGTGGTGAATAATGATAATACTAAAGAAAACATGATGG
TCCTAACTGGATTAAAAAACATTTTTCAAAAGCAATTACCAAAAATGCCCAAAGAATACATTGCCAGGTTAGTCTATGAT
CGAAGTCATCTTTCCATGGCTGTCATTAGGAAGCCATTGACTGTCGTAGGTGGCATAACATATCGACCTTTCGATAAGAG
AGAATTCGCAGAAATTGTTTTCTGTGCCATCAGTTCGACGGAACAGGTACGCGGTTATGGTGCGCATCTAATGAATCACT
TAAAAGACTATGTTAGAAATACCTCGAACATAAAATATTTTTTGACATATGCAGATAATTACGCTATTGGATACGCTAAA
AAGCAAGGCTTCACTAAAGAAATCACGTTGGATAAAAGTATATGGATGGGATATATTAAAGATTATGAAGGTGGTACGCT
GATGCAATGTtccATGGCAATTCCCGGtggcggccgcatcttttacccatacgatgttcctgactatgcgggctatccct
atgacgtcccggactatgcaggatcctatccatatgacgttccagattacgctgctcagtgcggccgctctagctagaac
tagtggatcccccGATACCGTCGACCTGCAGGCATGCAAGCTTGGCGTAATCATGGTCATAGCTGTTTCCTGTGTGAAAT
TGTTATCCGCTCACAATTCCACACAACATACGAGCCGGAAGCATAAAGTGTAAAGCCTGGGGTGCCTAATGAGTGAGCTA
ACTCACATTAATTGCGTTGCGCTCACTGCCCGCTTTCCAGTCGGGAAACCTGTCGTGCCAGCTGCATTAATGAATCGGCC
AACGCGCGGGGAGAGGCGGTTTGCGTATTGGGCGC
//

FIG. 19 Cont.

434-1861: Gal4 DBD-H3-Gcn5-HA
434-874: Gal4 DBD (amino acids 1-147)
1010-1714: Gcn5 (amino acids 18-252)
1748-1837: trimeric HA
...-...: CEN/ARS
...-...: TRP1

Translation: Gal4-DBD-Gcn5-HA
MKLLSSIEQACDICRLKKLKCSKEKPKCAKCLKNNWECRYSPKTKRSPLTRAHLTEVESRLERLEQLFLLIFPREDLDMI
LKMDSLQDIKALLTGLFVQDNVNKDAVTDRLASVETDMPLTLRQHRISATSSSEESSNKGQRQLTVSNYLFDDEDTPPNP
KKEIEFQGSPILGYWKGRRDHPPKSDLIEGRGDPEVKRVKLENNVEEIQPEQAETNKQEGTDKENKGKFEKETERIGGSE
VVTDVEKGIVKFEFDGVEYTFKERPSVVEENEGKIEFRVVNNDNTKENMMVLTGLKNIFQKQLPKMPKEYIARLVYDRSH
LSMAVIRKPLTVVGGITYRPFDKREFAEIVFCAISSTEQVRGYGAHLMNHLKDYVRNTSNIKYFLTYADNYAIGYFKKQG
FTKEITLDKSIWMGYIKDYEGGTLMQCNMAIPGGGRIFYPYDVPDYAGYPYDVPDYAGSYPYDVPDYAAQCGRSS

; DNA sequence PDG28 8087 b.p. complete sequence
;
gtggtacataacgaactaatactgtagccctagacttgatagccatcatcatatcgaagtttcactacccttttttccatt
tgccatctattgaagtaataataggcgcatgcaacttcttttcttttttttttcttttctctctcccccgttgttgtctca
ccatatccgcaatgacaaaaaaaatgatggaagacactaaaggaaaaaattaacgacaaagacagcaccaacagatgtcgt
tgttccagagctgatgaggggtatctcgaagcacacgaaacttttttccttccttcattgacctgcaattattaatctttt
gtttcctcgtcattgttctcgttccctttcttccttgtttcttttttctgcacaatatttcaagctataccaagcatacaa
tcaactccaagcttgaagcaagcctcctgaaagATGAAGCTACTGTCTTCTATCGAACAAGCATGCGATATTTGCCGACT
TAAAAAGCTCAAGTGCTCCAAAGAAAAACCGAAGTGCGCCAAGTGTCTGAAGAACAACTGGGAGTGTCGCTACTCTCCCA
AAACCAAAAGGTCTCCGCTGACTAGGGCACATCTGACAGAAGTGGAATCAAGGCTAGAAAGACTGGAACAGCTATTTCTA
CTGATTTTTCCTCGAGAAGACCTTGACATGATTTTGAAAATGGATTCTTTACAGGATATAAAAGCATTGTTAACAGGATT
ATTTGTACAAGATAATGTGAATAAAGATGCCGTCACAGATAGATTGGCTTCAGTGGAGACTGATATGCCTCTAACATTGA
GACAGCATAGAATAAGTGCGACATCATCATCGGAAGAGAGTAGTAACAAAGGTCAAAGACAGTTGACTGTATCGAACTAT
CTATTCGATGATGAAGATACCCCACCAAACCCAAAAAAAGAGATCGAATTCCAGgggtcccctatactaggttattggaa
aggtcgacgcgaccatcctccaaaatcggatctgatcgaaggtcgtggaGATCCCGAAGTTAAACGGGTAAAATTAGAAA
ACAACGTTGAAGAAATACAACCTGAGCAGGCTGAGACCAATAAACAAGAGGGCACCGATAAAGAGAATAAAGGAAAGTTC
GAGAAAGAAACTGAGAGAATAGGAGGATCTGAAGTGGTTACAGATGTGGAAAAAGGAATTGTCAAATTTGAATTTGATGG
TGTTGAATACACATTCAAAGAGAGACCCAGTGTCGTAGAGGAAAATGAAGGTAAAATTGAGTTTAGGGTGGTGAATAATG
ATAATACTAAAGAAAACATGATGGTCCTAACTGGATTAAAAAACATTTTTCAAAAGCAATTACCAAAAATGCCCAAAGAA
TACATTGCCAGGTTAGTCTATGATCGAAGTCATCTTTCCATGGCTGTCATTAGGAAGCCATTGACTGTCGTAGGTGGCAT
AACATATCGACCTTTCGATAAGAGAGAATTCGCAGAAATTGTTTTCTGTGCCATCAGTTCGACGGAACAGGTACGCGGTT
ATGGTGCGCATCTAATGAATCACTTAAAAGACTATGTTAGAAATACCTCGAACATAAAATATTTTTTGACATATGCAGAT
AATTACGCTATTGGATACTTTAAAAAGCAAGGCTTTACTAAAGAAATCACGTTGGATAAAAGTATATGGATGGGATATAT
TAAAGATTATGAAGGTGGTACGCTGATGCAATGTAACATGGCAATTCCCGGtggcggccgcatcttttacccatacgatg
ttcctgactatgcgggctatccctatgacgtcccggactatgcaggatcctatccatatgacgttccagattacgctgct
cagtgcggccgctctagctagaactagtggatccccCGATACCGTCGACCTGCAGAGATCTAtgaatcgtagatactgaa
aaaccccgcaagttcacttcaactgtgcatcgtgcaccatctcaatttctttcatttatacatcgttttgccttctttta
tgtaactatactcctctaagtttcaatcttggccatgtaacctctgatctatagaatttttaaatgactagaattaatg
cccatctttttttttggacctaaattcttcatgaaaatatattacgagggcttattcagaagctttggacttcttcgccag
aggtttggtcaagtctccaatcaaggttgtcggcttgtctaccttgccagaaatttacgaaaagatggaaaagggtcaaa
tcgttggtagatacgttgttgacacttctaaataagcgaatttcttatgatttatgattttattattaaataagttata
aaaaaaataagtgtatacaaattttaaagtgactcttaggttttaaaacgaaaattcttattcttgagtaactctttcct
gtaggtcaggttgctttctcaggtatagcatgaggtcgctcttattgaccacacctctaccggcatgccgagcaaatgcc

FIG. 20

tgcaaatcgctccccatttcacccaattgtagatatgctaactccagcaatgagttgatgaatctcggtgtgtattttat
gtcctcagaggacaacacctgttgtaatcgttcttccacacggatcctggcgtaatagcgaagaggcccgcaccgatcgc
ccttcccaacagttgcgcagcctgaatggcgaatggcgcctgatgcggtattttctccttacgcatctgtgcggtatttc
acaccgcatatatcgctgggccattctcatgaagaatatcttgaatttattgtcatattactagttggtgtggaagtcca
tatatcggtgatcaatatagtggttgacatgctggctagtcaacattgagccttttgatcatgcaaatatattacggtat
tttacaatcaaatatcaaacttaactattgactttataacttatttaggtggtaacattcttataaaaaagaaaaaaatt
actgcaaaacagtactagcttttaacttgtatcctaggttatctatgctgtctcaccatagagaatattacctatttcag
aatgtatgtccatgattcgccgggtaaatacatataatacacaaatctggcttaataaagtctataatatatctcataaa
gaagtgctaaattggctagtgctatatatttttaagaaaatttcttttgactaagtccatatcgactttgtaaaagttca
ctttagcatacatatattacacgagccagaaattgtaacttttgcctaaaatcacaaattgcaaaatttaattgcttgca
aaaggtcacatgcttataatcaacttttttaaaaatttaaaatacttttttatttttttatttttaaacataaatgaaata
atttatttattgtttatgattaccgaaacataaaacctgctcaagaaaaagaaactgttttgtccttggaaaaaagcac
tacctaggagcggccaaaatgccgaggctttcatagcttaaactctttacagaaaataggcattatagatcagttcgagt
tttcttattcttccttccggttttatcgtcacagttttacagtaaataagtatcacctcttagagttcgatgataagctg
tcaaacatgagaattaattccacatgttaaaatagtgaaggagcatgttcggcacacagtggaccgaacgtggggtaagt
gcactagggtccggttaaacggatctcgcattgatgaggcaacgctaattatcaacatatagattgttatctatctgcat
gaacacgaaatctttacttgacgacttgaggctgatggtgtttatgcaaagaaaccactgtgtttaatatgtgtcactgt
ttgatattactgtcagcgtagaagataatagtaaaagcggttaataagtgtatttgagataagtgtgataaagtttttac
agcgaaaagacgataaatacaagaaaatgattacgaggatacggagagaggtatgtacatgtgtatttatatactaagct
gccggcggttgtttgcaagaccgagaaaaggctagcaagaatcgggtcattgtagcgtatgcgcctgtgaacattctctt
caacaagtttgattccattgcggtgaaatggtaaaagtcaacccccctgcgatgtatattttcctgtacaatcaatcaaaa
agccaaatgatttagcattatctttacatcttgttattttacagattttatgtttagatcttttatgcttgcttttcaaa
aggcttgcaggcaagtgcacaaacaatacttaaataaatactactcagtaataacctaTTTCTTAGCATTTTTGACGAAA
TTTGCTATTTTGTTAGAGTCTTTTACACCATTTGTCTCCACACCTCCGCTTACATCAACACCAATAACGCCATTTAATCT
AAGCGCATCACCAACATTTTCTGGCGTCAGTCCACCAGCTAACATAAAATGTAAGCTCTCGGGGCTCTCTTGCCTTCCAA
CCCAGTCAGAAATCGAGTTCCAATCCAAAAGTTCACCTGTCCCACCTGCTTCTGAATCAAACAAGGGAATAAACGAATGA
GGTTTCTGTGAAGCTGCACTGAGTAGTATGTTGCAGTCTTTTGGAAATACGAGTCTTTTAATAACTGGCAAACCGAGGAA
CTCTTGGTATTCTTGCCACGACTCATCTCCATGCAGTTGGACGATATCAATGCCGTAATCATTGACCAGAGCCAAAACAT
CCTCCTTAGGTTGATTACGAAACACGCCAACCAAGTATTTCGGAGTGCCTGAACTATTTTTATATGCTTTTACAAGACTT
GAAATTTTCCTTGCAATAACCGGGTCAATTGTTCTCTTTCTATTGGGCACACATATAATACCCAGCAAGTCAGCATCGGA
ATCTAGTGCACATTCTGCGGCCTCTGTGCTCTGCAAGCCGCAAACTTTCACCAATGGACCAGAACTACCTGTGAAATTAA
TAACAGACATactccaagctgcctttgtgtgcttaatcacgtatactcacgtgctcaatagtcaccaatgccctccctct
tggccctctcctttttcttttttcgaccgaattaattcttgaagacgaaagggcctcgtgatacgcctatttttataggtt
aatgtcatgataataatggtttcttagacgtcaggtggcacttttcggggaaatgtgcgcggaacccctatttgtttatt
tttctaaatacattcaaatatgtatccgctcatgagacaataaccctgataaatgcttcaataatattgaaaaaggaaga
gtATGAGTATTCAACATTTCCGTGTCGCCCTTATTCCCTTTTTTGCGGCATTTTGCCTTCCTGTTTTTGCTCACCCAGAA
ACGCTGGTGAAAGTAAAAGATGCTGAAGATCAGTTGGGTGCACGAGTGGGTTACATCGAACTGGATCTCAACAGCGGTAA
GATCCTTGAGAGTTTTCGCCCCGAAGAACGTTTTCCAATGATGAGCACTTTTAAAGTTCTGCTATGTGGCGCGGTATTAT
CCCGTATTGACGCCGGGCAAGAGCAACTCGGTCGCCGCATACACTATTCTCAGAATGACTTGGTTGAGTACTCACCAGTC
ACAGAAAAGCATCTTACGGATGGCATGACAGTAAGAGAATTATGCAGTGCTGCCATAACCATGAGTGATAACACTGCGGC
CAACTTACTTCTGACAACGATCGGAGGACCGAAGGAGCTAACCGCTTTTTTGCACAACATGGGGGATCATGTAACTCGCC
TTGATCGTTGGGAACCGGAGCTGAATGAAGCCATACCAAACGACGAGCGTGACACCACGATGCCTGTAGCAATGGCAACA
ACGTTGCGCAAACTATTAACTGGCGAACTACTTACTCTAGCTTCCCGGCAACAATTAATAGACTGGATGGAGGCGGATAA
AGTTGCAGGACCACTTCTGCGCTCGGCCCTTCCGGCTGGCTGGTTTATTGCTGATAAATCTGGAGCCGGTGAGCGTGGGT
CTCGCGGTATCATTGCAGCACTGGGGCCAGATGGTAAGCCCTCCCGTATCGTAGTTATCTACACGACGGGGAGTCAGGCA
ACTATGGATGAACGAAATAGACAGATCGCTGAGATAGGTGCCTCACTGATTAAGCATTGGtaactgtcagaccaagttta
ctcatatatactttagattgatttaaaacttcatttttaatttaaaaggatctaggtgaagatccttttgataatctca
tgaccaaaatcccttaacgtgagttttcgttccactgagcgtcagaccccgtagaaaagatcaaaggatcttcttgagat
ccttttttctgcgcgtaatctgctgcttgcaaacaaaaaaaccaccgctaccagcggtggtttgtttgccggatcaaga
gctaccaactctttttccgaaggtaactggcttcagcagagcgcagataccaaatactgtccttctagtgtagccgtagt
taggccaccacttcaagaactctgtagcaccgcctacatacctcgctctgctaatcctgttaccagtggctgctgccagt
ggcgataagtcgtgtcttaccgggttggactcaagacgatagttaccggataaggcgcagcggtcgggctgaacgggggg
ttcgtgcacacagcccagcttggagcgaacgacctacaccgaactgagatacctacagcgtgagctatgagaaagcgcca
cgcttcccgaagggagaaaggcggacaggtatccggtaagcggcagggtcggaacaggagagcgcacgagggagcttcca

FIG. 20 Cont.

ggggaaacgcctggtatctttatagtcctgtcgggtttcgccacctctgacttgagcgtcgatttttgtgatgctcgtc
aggggggcggagcctatggaaaaacgccagcaacgcggccttttacggttcctggccttttgctggccttttgctcaca
tgttctttcctgcgttatcccctgattctgtggataaccgtattaccgcctttgagtgagctgataccgctcgccgcagc
cgaacgaccgagcgcagcgagtcagtgagcgaggaagcggaagagcgcccaatacgcaaaccgcctctccccgcgcgttg
gccgattcattaatgcaggatccgggatcgaagaaatgatggtaaatgaaataggaaatcaaggagcatgaaggcaaaag
acaaatataagggtcgaacgaaaaataaagtgaaaagtgttgatatgatgtatttggctttgcggcgccgaaaaaacgag
tttacgcaattgcacaatcatgctgactctgtggcggacccgcgctcttgccggcccggcgataacgctgggcgtgaggc
tgtgcccggcggagtttttgcgcctgcattttccaaggtttaccctgcgctaaggggcgagattggagaagcaataaga
atgccggttggggttgcgatgatgacgaccacgacaactggtgtcattatttaagttgccgaaagaacctgagtgcattt
gcaacatgagtatactagaagaatgagccaagacttgcgagacgcgagtttgccggtggtgcgaacaatagagcgaccat
gaccttgaaggtgagacgcgcataaccgctagagtactttgaagaggaaacagcaatagggttgctaccagtataaatag
acaggtacatacaacactggaaatggttgtctgtttgagtacgctttcaattcatttgggtgtgcactttattatgttac
aatatggaagggaactttacacttctcctatgcacatatattaattaaagtccaatgctagtagagaaggggggtaacac
ccctccgcgctcttttccgatttttttctaaaccgtggaatatttcggatatccttttgttgtttccgggtgtacaatat
ggacttcctcttttctggcaaccaaacccatacatcgggattcctataataccttcgttggtctccctaacatgtaggtg
gcggaggggagatatacaatagaacagataccagacaagacataatgggctaaacaagactacaccaattacactgcctc
attgatg
//

FIG. 20 Cont.

434-1861: Gal4 DBD-H3-Gcn5-HA
434-874: Gal4 DBD (amino acids 1-147)
1010-1714: Gcn5 (amino acids 18-252)
1619-1621: F221A mutation
1748-1837: trimeric HA
...-...: CEN/ARS
...-...: TRP1

Translation: Gal4-DBD-Gcn5-HA
MKLLSSIEQACDICRLKKLKCSKEKPKCAKCLKNNWECRYSPKTKRSPLTRAHLTEVESRLERLEQLFLLIFPREDLDMI
LKMDSLQDIKALLTGLFVQDNVNKDAVTDRLASVETDMPLTLRQHRISATSSSEEESSNKGQRQLTVSNYLFDDEDTPPNP
KKEIEFQGSPILGYWKGRRDHPPKSDLIEGRGDPEVKRVKLENNVEEIQPEQAETNKQEGTDKENKGKFEKETERIGGSE
VVTDVEKGIVKFEFDGVEYTFKERPSVVEENEGKIEFRVVNNDNTKENMMVLTGLKNIFQKQLPKMPKEYIARLVYDRSH
LSMAVIRKPLTVVGGITYRPFDKREFAEIVFCAISSTEQVRGYGAHLMNHLKDYVRNTSNIKYFLTYADNYAIGYAKKQG
FTKEITLDKSIWMGYIKDYEGGTLMQCNMAIPGGGRIFYPYDVPDYAGYPYDVPDYAGSYPYDVPDYAAQCGRSS

; DNA sequence PDG28 8087 b.p. complete sequence
;
gtggtacataacgaactaatactgtagccctagacttgatagccatcatcatatcgaagtttcactacccttttccatt
tgccatctattgaagtaataataggcgcatgcaacttcttttcttttttttttcttttctctctccccgttgttgtctca
ccatatccgcaatgacaaaaaaatgatggaagacactaaaggaaaaaattaacgacaaagacagcaccaacagatgtcgt
tgttccagagctgatgaggggtatctcgaagcacacgaaacttttccttccttcattgacctgcaattattaatctttt
gtttcctcgtcattgttctcgttccctttcttccttgtttcttttttctgcacaatatttcaagctataccaagcatacaa
tcaactccaagcttgaagcaagcctcctgaaagATGAAGCTACTGTCTTCTATCGAACAAGCATGCGATATTTGCCGACT
TAAAAAGCTCAAGTGCTCCAAAGAAAAACCGAAGTGCGCCAAGTGTCTGAAGAACAACTGGGAGTGTCGCTACTCTCCCA
AAACCAAAAGGTCTCCGCTGACTAGGGCACATCTGACAGAAGTGGAATCAAGGCTAGAAAGACTGGAACAGCTATTTCTA
CTGATTTTTCCTCGAGAAGACCTTGACATGATTTTGAAAATGGATTCTTTACAGGATATAAAAGCATTGTTAACAGGATT
ATTTGTACAAGATAATGTGAATAAAGATGCCGTCACAGATAGATTGGCTTCAGTGGAGACTGATATGCCTCTAACATTGA
GACAGCATAGAATAAGTGCGACATCATCATCGGAAGAGAGTAGTAACAAAGGTCAAAGACAGTTGACTGTATCGAACTAT
CTATTCGATGATGAAGATACCCCACCAAACCCAAAAAAAGAGATCGAATTCCAGgggtcccctatactaggttattggaa
aggtcgacgcgaccatcctccaaaatcggatctgatcgaaggtcgtggaGATCCCGAAGTTAAACGGGTAAAATTAGAAA
ACAACGTTGAAGAAATACAACCTGAGCAGGCTGAGACCAATAAACAAGAGGGCACCGATAAAGAGAATAAAGGAAAGTTC
GAGAAAGAAACTGAGAGAATAGGAGGATCTGAAGTGGTTACAGATGTGGAAAAAGGAATTGTCAAATTTGAATTTGATGG
TGTTGAATACACATTCAAAGAGAGACCCAGTGTCGTAGAGGAAAATGAAGGTAAAATTGAGTTTAGGGTGGTGAATAATG
ATAATACTAAAGAAAACATGATGGTCCTAACTGGATTAAAAAACATTTTTCAAAAGCAATTACCAAAAATGCCCAAAGAA
TACATTGCCAGGTTAGTCTATGATCGAAGTCATCTTTCCATGGCTGTCATTAGGAAGCCATTGACTGTCGTAGGTGGCAT
AACATATCGACCTTTCGATAAGAGAGAATTCGCAGAAATTGTTTTCTGTGCCATCAGTTCGACGGAACAGGTACGCGGTT
ATGGTGCGCATCTAATGAATCACTTAAAAGACTATGTTAGAAATACCTCGAACATAAAATATTTTTTGACATATGCAGAT
AATTACGCTATTGGATACGCTAAAAAGCAAGGCTTTACTAAAGAAATCACGTTGGATAAAAGTATATGGATGGGATATAT
TAAAGATTATGAAGGTGGTACGCTGATGCAATGTAACATGGCAATTCCCGGtggcggccgcatcttttacccatacgatg
ttcctgactatgcgggctatccctatgacgtcccggactatgcaggatcctatccatatgacgttccagattacgctgct
cagtgcggccgctctagctagaactagtggatcccccGATACCGTCGACCTGCAGAGATCTAtgaatcgtagatactgaa
aaaccccgcaagttcacttcaactgtgcatcgtgcaccatctcaatttctttcatttatacatcgttttgccttctttta
tgtaactatactcctctaagtttcaatcttggccatgtaacctctgatctatagaatttttaaatgactagaattaatg
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aggtttggtcaagtctccaatcaaggttgtcggcttgtctaccttgccagaaatttacgaaaagatggaaaagggtcaaa
tcgttggtagatacgttgttgacacttctaaataagcgaatttcttatgatttatgatttttattattaaataagttata
aaaaaaataagtgtatacaaattttaaagtgactcttaggttttaaaacgaaaattcttattcttgagtaactctttcct

FIG. 21

gtaggtcaggttgctttctcaggtatagcatgaggtcgctcttattgaccacacctctaccggcatgccgagcaaatgcc
tgcaaatcgctccccatttcacccaattgtagatatgctaactccagcaatgagttgatgaatctcggtgtgtattttat
gtcctcagaggacaacacctgttgtaatcgttcttccacacggatcctggcgtaatagcgaagaggcccgcaccgatcgc
ccttcccaacagttgcgcagcctgaatggcgaatggcgcctgatgcggtattttctccttacgcatctgtgcggtatttc
acaccgcatatatcgctgggccattctcatgaagaatatcttgaatttattgtcatattactagttggtgtggaagtcca
tatatcggtgatcaatatagtggttgacatgctggctagtcaacattgagccttttgatcatgcaaatatattacggtat
tttacaatcaaatatcaaacttaactattgactttataacttatttaggtggtaacattcttataaaaaagaaaaaaatt
actgcaaaacagtactagcttttaacttgtatcctaggttatctatgctgtctcaccatagagaatattacctatttcag
aatgtatgtccatgattcgccgggtaaatacatataatacacaaatctggcttaataaagtctataatatatctcataaa
gaagtgctaaattggctagtgctatatatttttaagaaaatttcttttgactaagtccatatcgactttgtaaaagttca
ctttagcatacatatattacacgagccagaaattgtaacttttgcctaaaatcacaaattgcaaaatttaattgcttgca
aaaggtcacatgcttataatcaacttttttaaaaatttaaaatacttttttattttttattttaaacataaatgaaata
atttatttattgtttatgattaccgaaacataaaacctgctcaagaaaaagaaactgttttgtccttggaaaaaagcac
tacctaggagcggccaaaatgccgaggctttcatagcttaaactctttacagaaaataggcattatagatcagttcgagt
tttcttattcttccttccggttttatcgtcacagttttacagtaaataagtatcacctcttagagttcgatgataagctg
tcaaacatgagaattaattccacatgttaaaatagtgaaggagcatgttcggcacacagtggaccgaacgtggggtaagt
gcactagggtccggttaaacggatctcgcattgatgaggcaacgctaattatcaacatatagattgttatctatctgcat
gaacacgaaatctttacttgacgacttgaggctgatggtgtttatgcaaagaaaccactgtgtttaatatgtgtcactgt
ttgatattactgtcagcgtagaagataatagtaaaagcggttaataagtgtatttgagataagtgtgataaagtttttac
agcgaaaagacgataaatacaagaaaatgattacgaggatacggagagaggtatgtacatgtgtatttatatactaagct
gccggcggttgtttgcaagaccgagaaaaggctagcaagaatcgggtcattgtagcgtatgcgcctgtgaacattctctt
caacaagtttgattccattgcggtgaaatggtaaaagtcaacccccctgcgatgtatattttcctgtacaatcaatcaaaa
agccaaatgatttagcattatctttacatcttgttattttacagattttatgtttagatcttttatgcttgcttttcaaa
aggcttgcaggcaagtgcacaaacaatacttaaataaatactactcagtaataacctaTTTCTTAGCATTTTTGACGAAA
TTTGCTATTTTGTTAGAGTCTTTTACACCATTTGTCTCCACACCTCCGCTTACATCAACACCAATAACGCCATTTAATCT
AAGCGCATCACCAACATTTTCTGGCGTCAGTCCACCAGCTAACATAAAATGTAAGCTCTCGGGGCTCTCTTGCCTTCCAA
CCCAGTCAGAAATCGAGTTCCAATCCAAAAGTTCACCTGTCCCACCTGCTTCTGAATCAAACAAGGGAATAAACGAATGA
GGTTTCTGTGAAGCTGCACTGAGTAGTATGTTGCAGTCTTTTGGAAATACGAGTCTTTTAATAACTGGCAAACCGAGGAA
CTCTTGGTATTCTTGCCACGACTCATCTCCATGCAGTTGGACGATATCAATGCCGTAATCATTGACCAGAGCCAAAACAT
CCTCCTTAGGTTGATTACGAAACACGCCAACCAAGTATTTCGGAGTGCCTGAACTATTTTTATATGCTTTTACAAGACTT
GAAATTTTCCTTGCAATAACCGGGTCAATTGTTCTCTTTCTATTGGGCACACATATAATACCCAGCAAGTCAGCATCGGA
ATCTAGTGCACATTCTGCGGCCTCTGTGCTCTGCAAGCCGCAAACTTTCACCAATGGACCAGAACTACCTGTGAAATTAA
TAACAGACATactccaagctgcctttgtgtgcttaatcacgtatactcacgtgctcaatagtcaccaatgccctccctct
tggccctctcctttttcttttttcgaccgaattaattcttgaagacgaaagggcctcgtgatacgcctatttttataggtt
aatgtcatgataataatggtttcttagacgtcaggtggcacttttcggggaaatgtgcgcggaacccctatttgtttatt
tttctaaatacattcaaatatgtatccgctcatgagacaataaccctgataaatgcttcaataatattgaaaaaggaaga
gtATGAGTATTCAACATTTCCGTGTCGCCCTTATTCCCTTTTTTGCGGCATTTTGCCTTCCTGTTTTTGCTCACCCAGAA
ACGCTGGTGAAAGTAAAAGATGCTGAAGATCAGTTGGGTGCACGAGTGGGTTACATCGAACTGGATCTCAACAGCGGTAA
GATCCTTGAGAGTTTTCGCCCCGAAGAACGTTTTCCAATGATGAGCACTTTTAAAGTTCTGCTATGTGGCGCGGTATTAT
CCCGTATTGACGCCGGGCAAGAGCAACTCGGTCGCCGCATACACTATTCTCAGAATGACTTGGTTGAGTACTCACCAGTC
ACAGAAAAGCATCTTACGGATGGCATGACAGTAAGAGAATTATGCAGTGCTGCCATAACCATGAGTGATAACACTGCGGC
CAACTTACTTCTGACAACGATCGGAGGACCGAAGGAGCTAACCGCTTTTTTGCACAACATGGGGGATCATGTAACTCGCC
TTGATCGTTGGGAACCGGAGCTGAATGAAGCCATACCAAACGACGAGCGTGACACCACGATGCCTGTAGCAATGGCAACA
ACGTTGCGCAAACTATTAACTGGCGAACTACTTACTCTAGCTTCCCGGCAACAATTAATAGACTGGATGGAGGCGGATAA
AGTTGCAGGACCACTTCTGCGCTCGGCCCTTCCGGCTGGCTGGTTTATTGCTGATAAATCTGGAGCCGGTGAGCGTGGGT
CTCGCGGTATCATTGCAGCACTGGGGCCAGATGGTAAGCCCTCCCGTATCGTAGTTATCTACACGACGGGGAGTCAGGCA
ACTATGGATGAACGAAATAGACAGATCGCTGAGATAGGTGCCTCACTGATTAAGCATTGGtaactgtcagaccaagttta
ctcatatatactttagattgatttaaaacttcatttttaatttaaaaggatctaggtgaagatccttttgataatctca
tgaccaaaatcccttaacgtgagttttcgttccactgagcgtcagaccccgtagaaaagatcaaaggatcttcttgagat
ccttttttttctgcgcgtaatctgctgcttgcaaacaaaaaaaccaccgctaccagcggtggtttgtttgccggatcaaga
gctaccaactctttttccgaaggtaactggcttcagcagagcgcagataccaaatactgtccttctagtgtagccgtagt
taggccaccacttcaagaactctgtagcaccgcctacatacctcgctctgctaatcctgttaccagtggctgctgccagt
ggcgataagtcgtgtcttaccgggttggactcaagacgatagttaccggataaggcgcagcggtcgggctgaacgggggg
ttcgtgcacacagcccagcttggagcgaacgacctacaccgaactgagatacctacagcgtgagctatgagaaagcgcca

FIG. 21 Cont.

cgcttcccgaagggagaaaggcggacaggtatccggtaagcggcagggtcggaacaggagagcgcacgagggagcttcca
gggggaaacgcctggtatctttatagtcctgtcgggtttcgccacctctgacttgagcgtcgatttttgtgatgctcgtc
aggggggcggagcctatggaaaaacgccagcaacgcggccttttacggttcctggccttttgctggccttttgctcaca
tgttctttcctgcgttatcccctgattctgtggataaccgtattaccgcctttgagtgagctgataccgctcgccgcagc
cgaacgaccgagcgcagcgagtcagtgagcgaggaagcggaagagcgcccaatacgcaaaccgcctctccccgcgcgttg
gccgattcattaatgcaggatccgggatcgaagaaatgatggtaaatgaaataggaaatcaaggagcatgaaggcaaaag
acaaatataagggtcgaacgaaaaataaagtgaaaagtgttgatatgatgtatttggctttgcggcgccgaaaaaacgag
tttacgcaattgcacaatcatgctgactctgtggcggacccgcgctcttgccggcccggcgataacgctgggcgtgaggc
tgtgcccggcggagtttttgcgcctgcattttccaaggtttaccctgcgctaaggggcgagattggagaagcaataaga
atgccggttggggttgcgatgatgacgaccacgacaactggtgtcattatttaagttgccgaaagaacctgagtgcattt
gcaacatgagtatactagaagaatgagccaagacttgcgagacgcgagtttgccggtggtgcgaacaatagagcgaccat
gaccttgaaggtgagacgcgcataaccgctagagtactttgaagaggaaacagcaatagggttgctaccagtataaatag
acaggtacatacaacactggaaatggttgtctgtttgagtacgctttcaattcatttgggtgtgcactttattatgttac
aatatggaagggaactttacacttctcctatgcacatatattaattaaagtccaatgctagtagagaaggggggtaacac
ccctccgcgctcttttccgatttttttctaaaccgtggaatatttcggatatccttttgttgtttccgggtgtacaatat
ggacttcctcttttctggcaaccaaacccatacatcgggattcctataataccttcgttggtctccctaacatgtaggtg
gcggaggggagatatacaatagaacagataccagacaagacataatgggctaaacaagactacaccaattacactgcctc
attgatg
//

FIG. 21 Cont.

434-1894: Gal4 DBD-MCS-Gcn5(wt)-HA
926-970: multicloning sequence
1043-1747: Gcn5 (aa18-252)
1781-1871: trimeric HA

Translation: GDBD-MCS-Gcn5-HA
MKLLSSIEQACDICRLKKLKCSKEKPKCAKCLKNNWECRYSPKTKRSPLTRAHLTEVESRLERLEQLFLLIFPREDLDMI
LKMDSLQDIKALLTGLFVQDNVNKDAVTDRLASVETDMPLTLRQHRISATSSSEESSNKGQRQLTVSNYLFDDEDTPPNP
KKEIEFQGTMHELPRLEPGSPILGYWKGRRDHPPKSDLIEGRGDPEVKRVKLENNVEEIQPEQAETNKQEGTDKENKGKF
EKETERIGGSEVVTDVEKGIVKFEFDGVEYTFKERPSVVEENEGKIEFRVVNNDNTKENMMVLTGLKNIFQKQLPKMPKE
YIARLVYDRSHLSMAVIRKPLTVVGGITYRPFDKREFAEIVFCAISSTEQVRGYGAHLMNHLKDYVRNTSNIKYFLTYAD
NYAIGYFKKQGFTKEITLDKSIWMGYIKDYEGGTLMQCNMAIPGGGRIFYPYDVPDYAGYPYDVPDYAGSYPYDVPDYAA
QCGRSS

; ### from DNA Strider Wednesday, March 26, 2003 1:40:57 PM
; DNA sequence pDG30 8120 b.p. complete sequence
;
gtggtacataacgaactaatactgtagccctagacttgatagccatcatcatatcgaagtttcactacccttttttccatt
tgccatctattgaagtaataataggcgcatgcaacttcttttcttttttttttcttttctctctcccccgttgttgtctca
ccatatccgcaatgacaaaaaaatgatggaagacactaaaggaaaaaattaacgacaaagacagcaccaacagatgtcgt
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FIG. 22

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FIG. 22 Cont.

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ggctaaacaagactacaccaattacactgcctcattgatg
//
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FIG. 22 Cont.

434-1894: Gal4 DBD-MCS-Gcn5(wt)-HA
926-970: multicloning sequence
1043-1747: Gcn5 (F221A) (aa18-252)
1781-1871: trimeric HA

Translation: GDBD-MCS-Gcn5(F221A)-HA
MKLLSSIEQACDICRLKKLKCSKEKPKCAKCLKNNWECRYSPKTKRSPLTRAHLTEVESRLERLEQLFLLIFPREDLDMI
LKMDSLQDIKALLTGLFVQDNVNKDAVTDRLASVETDMPLTLRQHRISATSSSEESSNKGQRQLTVSNYLFDDEDTPPNP
KKEIEFQGTMHELPRLEPGSPILGYWKGRRDHPPKSDLIEGRGDPEVKRVKLENNVEEIQPEQAETNKQEGTDKENKGKF
EKETERIGGSEVVTDVEKGIVKFEFDGVEYTFKERPSVVEENEGKIEFRVVNNDNTKENMMVLTGLKNIFQKQLPKMPKE
YIARLVYDRSHLSMAVIRKPLTVVGGITYRPFDKREFAEIVFCAISSTEQVRGYGAHLMNHLKDYVRNTSNIKYFLTYAD
NYAIGYAKKQGFTKEITLDKSIWMGYIKDYEGGTLMQCNMAIPGGGRIFYPYDVPDYAGYPYDVPDYAGSYPYDVPDYAA
QCGRSS

; ### from DNA Strider Wednesday, March 26, 2003 1:41:20 PM
; DNA sequence pDG31 8120 b.p. complete sequence
;
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FIG. 23

ctgtctcaccatagagaatattacctatttcagaatgtatgtccatgattcgccgggtaaatacatataatacacaaatc
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gcgctaaggggcgagattggagaagcaataagaatgccggttggggttgcgatgatgacgaccacgacaactggtgtcat
tatttaagttgccgaaagaacctgagtgcatttgcaacatgagtatactagaagaatgagccaagacttgcgagacgcga
gtttgccggtggtgcgaacaatagagcgaccatgaccttgaaggtgagacgcgcataaccgctagagtactttgaagagg

FIG. 23 Cont.

```
aaacagcaatagggttgctaccagtataaatagacaggtacatacaacactggaaatggttgtctgtttgagtacgcttt
caattcatttgggtgtgcactttattatgttacaatatggaagggaactttacacttctcctatgcacatatattaatta
aagtccaatgctagtagagaaggggggtaacacccctccgcgctcttttccgatttttttctaaaccgtggaatatttcg
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ggctaaacaagactacaccaattacactgcctcattgatg
//
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FIG. 23 Cont.

434-2146: Gal4 DBD-p53-Gcn5-HA
434-874: Gal4 DBD (amino acids 1-147)
938-1216: p53 (amino acids 300-393)
1295-1999: Gcn5 (amino acids 18-252)
2033-2119: trimeric HA

Translation: Gal4-DBD-p53(300-393)-Gcn5-HA
MKLLSSIEQACDICRLKKLKCSKEKPKCAKCLKNNWECRYSPKTKRSPLTRAHLTEVESRLERLEQLFLLIFPREDLDMI
LKMDSLQDIKALLTGLFVQDNVNKDAVTDRLASVETDMPLTLRQHRISATSSSEESSNKGQRQLTVSNYLFDDEDTPPNP
KKEIEFQLPGSTKRALPNNTSSSPQPKKKPLDGEYFTLQIRGRERFEMFRELNEALELKDAQAGKEPGGSRAHSSHLKSK
KGQSTSRHKKLMFKTEGPDSDPGSPILGYWKGRRDHPPKSDLIEGRGDPEVKRVKLENNVEEIQPEQAETNKQEGTDKEN
KGKFEKETERIGGSEVVTDVEKGIVKFEFDGVEYTFKERPSVVEENEGKIEFRVVNNDNTKENMMVLTGLKNIFQKQLPK
MPKEYIARLVYDRSHLSMAVIRKPLTVVGGITYRPFDKREFAEIVFCAISSTEQVRGYGAHLMNHLKDYVRNTSNIKYFL
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DYAAQCGRSS

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FIG. 24

ccGATACCGTCGACCTGCAGAGATCTAtgaatcgtagatactgaaaaaccccgcaagttcacttcaactgtgcatcgtgc
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CTGGCTGGTTTATTGCTGATAAATCTGGAGCCGGTGAGCGTGGGTCTCGCGGTATCATTGCAGCACTGGGGCCAGATGGT
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FIG. 24 Cont.

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FIG. 24 Cont.

434-2146: Gal4 DBD-p53-Gcn5-HA
434-874: Gal4 DBD (amino acids 1-147)
938-1216: p53 (amino acids 300-393)
1295-1999: Gcn5 (amino acids 18-252) with Phe221 changed to Ala
2033-2119: trimeric HA

Translation: Gal4-DBD-p53(300-393)-Gcn5-HA
MKLLSSIEQACDICRLKKLKCSKEKPKCAKCLKNNWECRYSPKTKRSPLTRAHLTEVESRLERLEQLFLLIFPREDLDMI
LKMDSLQDIKALLTGLFVQDNVNKDAVTDRLASVETDMPLTLRQHRISATSSSEESSNKGQRQLTVSNYLFDDEDTPPNP
KKEIEFQLPGSTKRALPNNTSSSPQPKKKPLDGEYFTLQIRGRERFEMFRELNEALELKDAQAGKEPGGSRAHSSHLKSK
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KGKFEKETERIGGSEVVTDVEKGIVKFEFDGVEYTFKERPSVVEENEGKIEFRVVNNDNTKENMMVLTGLKNIFQKQLPK
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CTATTCGATGATGAAGATACCCCACCAAACCCAAAAAAAGAGATCGAATTCCAGCTGccagggagcactaagcgagcact
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FIG. 25

ccGATACCGTCGACCTGCAGAGATCTAtgaatcgtagatactgaaaaaccccgcaagttcacttcaactgtgcatcgtgc
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CTCCACACCTCCGCTTACATCAACACCAATAACGCCATTTAATCTAAGCGCATCACCAACATTTTCTGGCGTCAGTCCAC
CAGCTAACATAAAATGTAAGCTCTCGGGGCTCTCTTGCCTTCCAACCCAGTCAGAAATCGAGTTCCAATCCAAAAGTTCA
CCTGTCCCACCTGCTTCTGAATCAAACAAGGGAATAAACGAATGAGGTTTCTGTGAAGCTGCACTGAGTAGTATGTTGCA
GTCTTTTGGAAATACGAGTCTTTTAATAACTGGCAAACCGAGGAACTCTTGGTATTCTTGCCACGACTCATCTCCATGCA
GTTGGACGATATCAATGCCGTAATCATTGACCAGAGCCAAAACATCCTCCTTAGGTTGATTACGAAACACGCCAACCAAG
TATTTCGGAGTGCCTGAACTATTTTTATATGCTTTTACAAGACTTGAAATTTTCCTTGCAATAACCGGGTCAATTGTTCT
CTTTCTATTGGGCACACATATAATACCCAGCAAGTCAGCATCGGAATCTAGTGCACATTCTGCGGCCTCTGTGCTCTGCA
AGCCGCAAACTTTCACCAATGGACCAGAACTACCTGTGAAATTAATAACAGACATactccaagctgcctttgtgtgctta
atcacgtatactcacgtgctcaatagtcaccaatgccctccctcttggccctctcctttttcttttttcgaccgaattaat
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tggcacttttcggggaaatgtgcgcggaacccctatttgtttatttttctaaatacattcaaatatgtatccgctcatga
gacaataaccctgataaatgcttcaataatattgaaaaaggaagagtATGAGTATTCAACATTTCCGTGTCGCCCTTATT
CCCTTTTTTGCGGCATTTTGCCTTCCTGTTTTTGCTCACCCAGAAACGCTGGTGAAAGTAAAAGATGCTGAAGATCAGTT
GGGTGCACGAGTGGGTTACATCGAACTGGATCTCAACAGCGGTAAGATCCTTGAGAGTTTTCGCCCCGAAGAACGTTTTC
CAATGATGAGCACTTTTAAAGTTCTGCTATGTGGCGCGGTATTATCCCGTATTGACGCCGGGCAAGAGCAACTCGGTCGC
CGCATACACTATTCTCAGAATGACTTGGTTGAGTACTCACCAGTCACAGAAAAGCATCTTACGGATGGCATGACAGTAAG
AGAATTATGCAGTGCTGCCATAACCATGAGTGATAACACTGCGGCCAACTTACTTCTGACAACGATCGGAGGACCGAAGG
AGCTAACCGCTTTTTTGCACAACATGGGGGATCATGTAACTCGCCTTGATCGTTGGGAACCGGAGCTGAATGAAGCCATA
CCAAACGACGAGCGTGACACCACGATGCCTGTAGCAATGGCAACAACGTTGCGCAAACTATTAACTGGCGAACTACTTAC
TCTAGCTTCCCGGCAACAATTAATAGACTGGATGGAGGCGGATAAAGTTGCAGGACCACTTCTGCGCTCGGCCCTTCCGG
CTGGCTGGTTTATTGCTGATAAATCTGGAGCCGGTGAGCGTGGGTCTCGCGGTATCATTGCAGCACTGGGGCCAGATGGT
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FIG. 25 Cont.

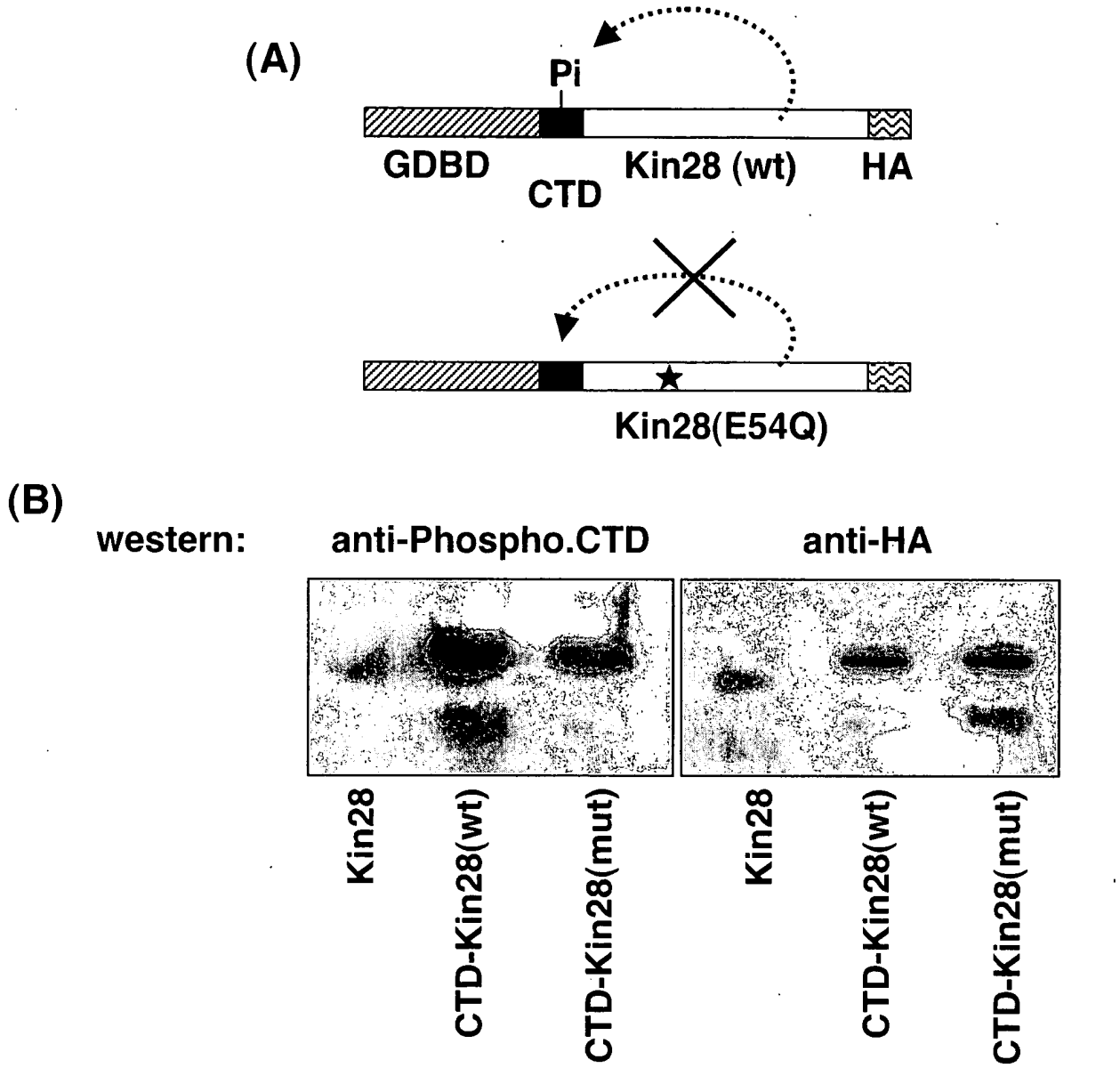
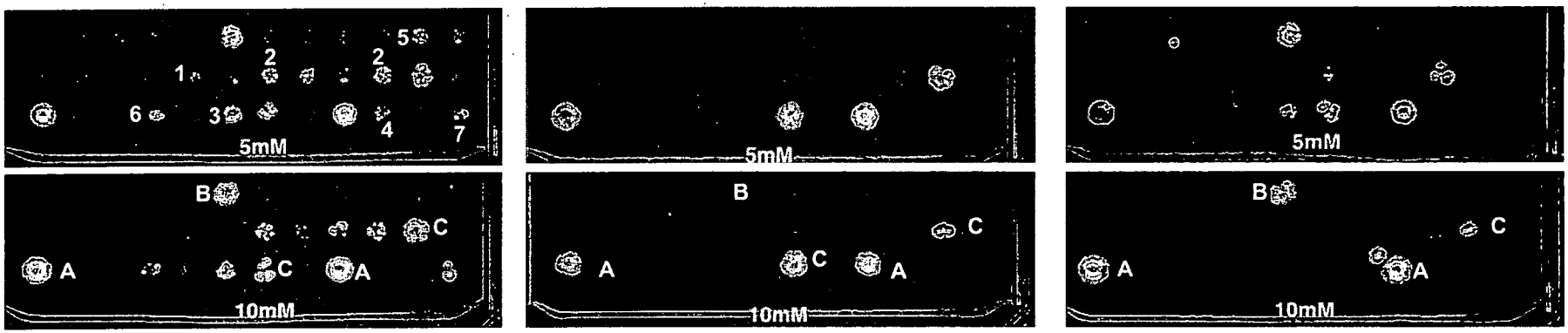

(A)
Pi
GDBD
CTD
Kin28 (wt)
HA
Kin28(E54Q)
(B)
western:
anti-Phospho.CTD
anti-HA
Kin28
CTD-Kin28(wt)
CTD-Kin28(mut)
Kin28
CTD-Kin28(wt)
CTD-Kin28(mut)

FIG. 26



CTD-Kin28wt

CTD-Kin28mut

Kin28wt

Phosphorylated CTD-interacting proteins
1 = Fcp1
2 = Ssn8/Srb11
3= Tfb3
4 = Whi2
5 = YMR181c
6 = YPL229w
7 = YDR428C

Kin28-interacting proteins
A = Ccl1
B = Pcl10
C = YDL100c

FIG. 27

Autophosphorylation of H3 at Ser10 by the tethered Ipl1 kinase

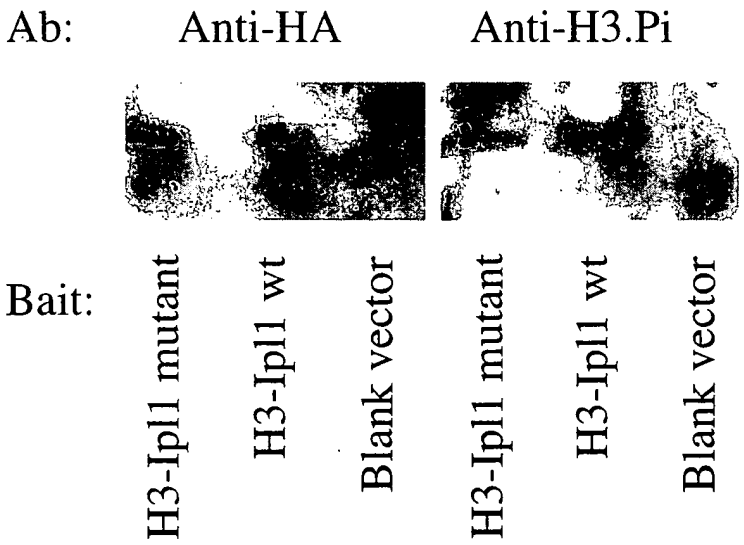


FIG. 28

GST pulldown shows acetylation-stimulated interaction between p53 and PIASxα and acetylation-independent interaction between p53 and PIASxβ

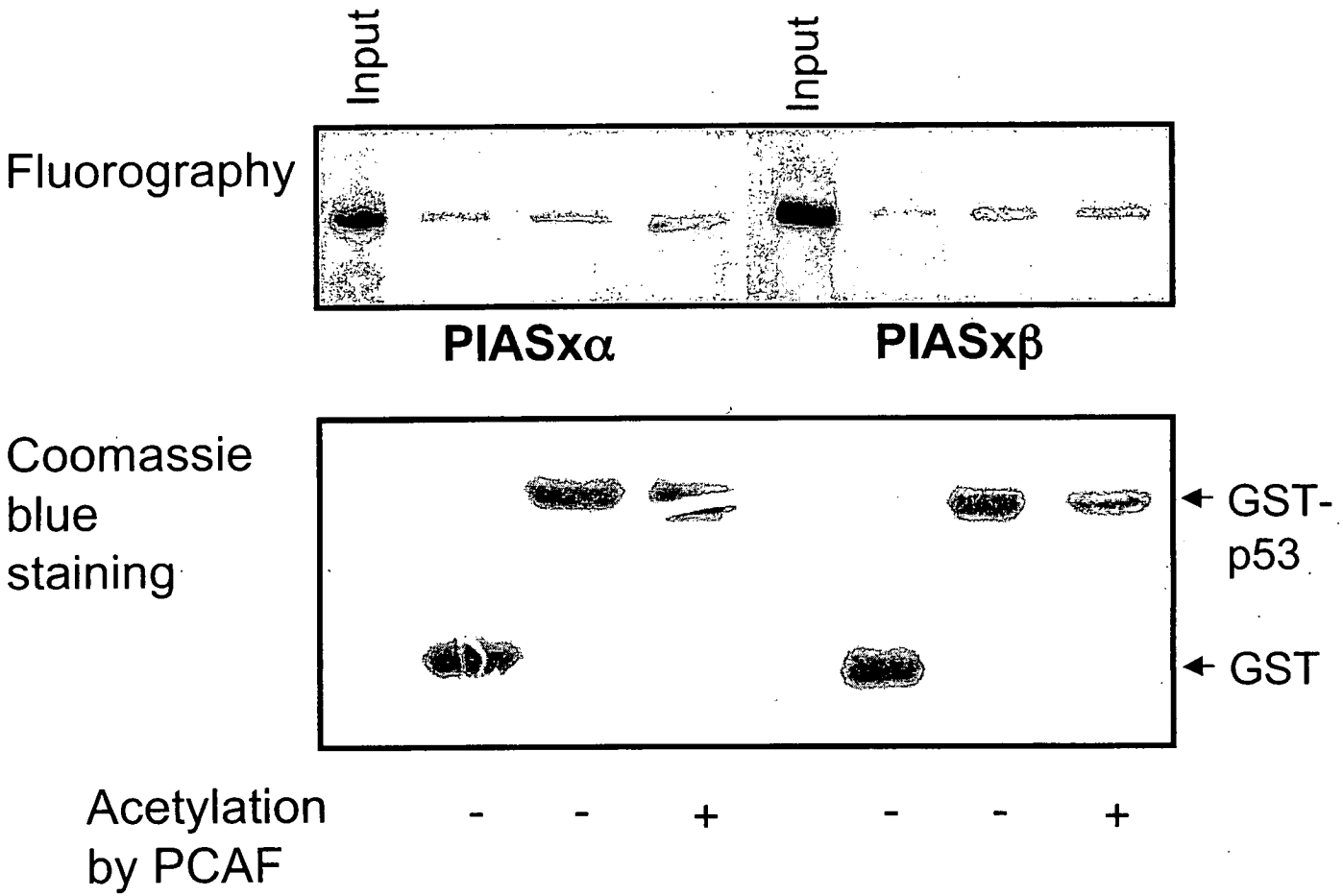


FIG. 29

434-2482: Gal4 DBD-H3-Ipl1-HA
434-874: Gal4 DBD (amino acids 1-147)
932-952: TEV cleavage sequence (ENLYFQG)
974-1153: H3 (amino acids 1-59)
1235-2332: Ipl1 ORF
2369-2458: HAx3

Translation: Gal4 DBD-H3-Ipl1-HAx3
MKLLSSIEQACDICRLKKLKCSKEKPKCAKCLKNNWECRYSPKTKRSPLTRAHLTEVESR
LERLEQLFLLIFPREDLDMILKMDSLQDIKALLTGLFVQDNVNKDAVTDRLASVETDMPL
TLRQHRISATSSSEESSNKGQRQLTVSNYLFDDEDTPPNPKKEIEFQENLYFQGLTTMFM
ARTKQTARKSTGGKAPRKQLASKAARKSAPSTGGVKKPHRYKPGTVALREIRRFQKSTEP
GSPILGYWKGRRDHPPKSDLIEGRGGPQRNSLVNIKLNANSPSKKTTTRPNTSRINKPWR
ISHSPQQRNPNSKIPSPVREKLNRLPVNNKKFLDMESSKIPSPIRKATSSKMIHENKKLP
KFKSLSLDDFELGKKLGKGKFGKVYCVRHRSTGYICALKVMEKEEIIKYNLQKQFRREVE
IQTSLNHPNLTKSYGYFHDEKRVYLLMEYLVNGEMYKLLRLHGPFNDILASDYIYQIANA
LDYMHKKNIIHRDIKPENILIGFNNVIKLTDFGWSIINPPENRRKTVCGTIDYLSPEMVE
SREYDHTIDAWALGVLAFELLTGAPPFEEEMKDTTYKRIAALDIKMPSNISQDAQDLILK
LLKYDPKDRMRLGDVKMHPWILRNKPFWENKRLELMAIPGGGRIFYPYDVPDYAGYPYDV
PDYAGSYPYDVPDYAAQCGRSS

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CTGATTTTTCCTCGAGAAGACCTTGACATGATTTTGAAAATGGATTCTTTACAGGATATAAAAG
CATTGTTAACAGGATTATTTGTACAAGATAATGTGAATAAAGATGCCGTCACAGATAGATTGGC
TTCAGTGGAGACTGATATGCCTCTAACATTGAGACAGCATAGAATAAGTGCGACATCATCATCG
GAAGAGAGTAGTAACAAAGGTCAAAGACAGTTGACTGTATCGAACTATCTATTCGATGATGAAG
ATACCCCACCAAACCCAAAAAAAGAGATCGAATTCCAGgagaatttgtattttcaaggtCTGAC
CACCATGTTTatggccagaacaaagcaaacagcaagaaagtccactggtggtaaggccccaaga
aagcaattagcttctaaggctgccagaaaatccgccccatctaccggtggtgttaagaagcctc
acagatataagccaggtactgttgctttgagagaaatcagaagattccaaaaatctactgaaCC
Cgggtcccctatactaggttattggaaaggtcgacgcgaccatcctccaaaatcggatctgatc
gaaggtcgtggaGGGCCCCAACGCAATAGTTTAGTAAATATCAAACTAAACGCTAATTCGCCAT

FIG. 30

CGAAAAAGACCACAACAAGACCAAATACGTCCAGGATCAATAAACCATGGAGAATATCCCATTC
GCCGCAGCAAAGAAACCCGAATTCAAAAATACCTTCACCTGTAAGAGAAAAATTGAACAGATTA
CCTGTAAACAATAAGAAGTTTTTGGATATGGAAAGCTCCAAAATTCCATCACCTATAAGGAAAG
CGACTTCTTCCAAAATGATACACGAAAATAAGAAGCTACCTAAATTTAAATCCCTATCACTCGA
TGACTTTGAACTGGGGAAGAAATTAGGAAAGGGTAAATTCGGTAAAGTTTATTGCGTTCGGCAC
AGGAGTACAGGATATATTTGCGCACTGAAAGTAATGGAGAAGGAAGAAATAATAAAGTATAATT
TACAGAAACAATTCAGAAGGGAGGTAGAAATACAAACATCGCTAAATCATCCGAATCTAACTAA
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AATCCGCCAGAAAATAGAAGGAAAACTGTCTGTGGGACAATTGACTACCTTTCTCCAGAAATGG
TGGAGTCAAGGGAATATGATCACACTATAGATGCATGGGCTCTTGGCGTCCTGGCGTTTGAACT
ACTGACCGGTGCCCCTCCGTTCGAAGAAGAAATGAAAGATACTACATATAAAAGGATAGCAGCA
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AATACGACCCCAAAGATAGAATGCGCCTTGGAGACGTAAAAATGCATCCTTGGATACTAAGAAA
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tacccatacgatgttcctgactatgcgggctatccctatgacgtcccggactatgcaggatcct
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caactgtgcatcgtgcaccatctcaatttctttcatttatacatcgttttgccttcttttatgt
aactatactcctctaagtttcaatcttggccatgtaacctctgatctatagaatttttaaatg
actagaattaatgcccatctttttttggacctaaattcttcatgaaaatatattacgagggct
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aaaataagtgtatacaaattttaaagtgactcttaggttttaaaacgaaaattcttattcttga
gtaactctttcctgtaggtcaggttgctttctcaggtatagcatgaggtcgctcttattgacca
cacctctaccggcatgccgagcaaatgcctgcaaatcgctccccatttcacccaattgtagata
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tgttgtaatcgttcttccacacggatcctggcgtaatagcgaagaggcccgcaccgatcgccct
tcccaacagttgcgcagcctgaatggcgaatggcgcctgatgcggtattttctccttacgcatc
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ggtcacatgcttataatcaacttttttaaaaatttaaaatacttttttatttttttatttttaaa
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FIG. 30 Cont.

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agaagataatagtaaaagcggttaataagtgtatttgagataagtgtgataaagttttacagc
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cttgcaggcaagtgcacaaacaatacttaaataaatactactcagtaataacctaTTTCTTAGC
ATTTTTGACGAAATTTGCTATTTTGTTAGAGTCTTTTACACCATTTGTCTCCACACCTCCGCTT
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CAGCTAACATAAAATGTAAGCTCTCGGGGCTCTCTTGCCTTCCAACCCAGTCAGAAATCGAGTT
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TTCTGTGAAGCTGCACTGAGTAGTATGTTGCAGTCTTTTGGAAATACGAGTCTTTTAATAACTG
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GCCGTAATCATTGACCAGAGCCAAAACATCCTCCTTAGGTTGATTACGAAACACGCCAACCAAG
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TAGTGCACATTCTGCGGCCTCTGTGCTCTGCAAGCCGCAAACTTTCACCAATGGACCAGAACTA
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tgctcaatagtcaccaatgccctccctcttggccctctccttttctttttcgaccgaattaat
tcttgaagacgaaagggcctcgtgatacgcctatttttataggttaatgtcatgataataatgg
tttcttagacgtcaggtggcacttttcggggaaatgtgcgcggaacccctatttgtttatttttt
ctaaatacattcaaatatgtatccgctcatgagacaataaccctgataaatgcttcaataatat
tgaaaaaggaagagtATGAGTATTCAACATTTCCGTGTCGCCCTTATTCCCTTTTTTGCGGCAT
TTTGCCTTCCTGTTTTTGCTCACCCAGAAACGCTGGTGAAAGTAAAAGATGCTGAAGATCAGTT
GGGTGCACGAGTGGGTTACATCGAACTGGATCTCAACAGCGGTAAGATCCTTGAGAGTTTTCGC
CCCGAAGAACGTTTTCCAATGATGAGCACTTTTAAAGTTCTGCTATGTGGCGCGGTATTATCCC
GTATTGACGCCGGGCAAGAGCAACTCGGTCGCCGCATACACTATTCTCAGAATGACTTGGTTGA
GTACTCACCAGTCACAGAAAAGCATCTTACGGATGGCATGACAGTAAGAGAATTATGCAGTGCT
GCCATAACCATGAGTGATAACACTGCGGCCAACTTACTTCTGACAACGATCGGAGGACCGAAGG
AGCTAACCGCTTTTTTGCACAACATGGGGGATCATGTAACTCGCCTTGATCGTTGGGAACCGGA
GCTGAATGAAGCCATACCAAACGACGAGCGTGACACCACGATGCCTGTAGCAATGGCAACAACG
TTGCGCAAACTATTAACTGGCGAACTACTTACTCTAGCTTCCCGGCAACAATTAATAGACTGGA
TGGAGGCGGATAAAGTTGCAGGACCACTTCTGCGCTCGGCCCTTCCGGCTGGCTGGTTTATTGC
TGATAAATCTGGAGCCGGTGAGCGTGGGTCTCGCGGTATCATTGCAGCACTGGGGCCAGATGGT
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GACAGATCGCTGAGATAGGTGCCTCACTGATTAAGCATTGGtaactgtcagaccaagtttactc
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FIG. 30 Cont.

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tccttttgttgtttccgggtgtacaatatggacttcctcttttctggcaaccaaacccatacat
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tagaacagataccagacaagacataatgggctaaacaagactacaccaattacactgcctcatt
gatg
//

FIG. 30 Cont.

434-2482: Gal4 DBD-H3-Ipl1-HA
434-874: Gal4 DBD (amino acids 1-147)
932-952: TEV cleavage sequence (ENLYFQG)
974-1153: H3 (amino acids 1-59)
1235-2332: Ipl1 ORF with E152Q V153L double mutations
2369-2458: HAx3

Translation: Gal4 DBD-H3-Ipl1-HAx3
MKLLSSIEQACDICRLKKLKCSKEKPKCAKCLKNNWECRYSPKTKRSPLTRAHLTEVESR
LERLEQLFLLIFPREDLDMILKMDSLQDIKALLTGLFVQDNVNKDAVTDRLASVETDMPL
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ARTKQTARKSTGGKAPRKQLASKAARKSAPSTGGVKKPHRYKPGTVALREIRRFQKSTEP
GSPILGYWKGRRDHPPKSDLIEGRGGPQRNSLVNIKLNANSPSKKTTTRPNTSRINKPWR
ISHSPQQRNPNSKIPSPVREKLNRLPVNNKKFLDMESSKIPSPIRKATSSKMIHENKKLP
KFKSLSLDDFELGKKLGKGKFGKVYCVRHRSTGYICALKVMEKEEIIKYNLQKQFRRQLE
IQTSLNHPNLTKSYGYFHDEKRVYLLMEYLVNGEMYKLLRLHGPFNDILASDYIYQIANA
LDYMHKKNIIHRDIKPENILIGFNNVIKLTDFGWSIINPPENRRKTVCGTIDYLSPEMVE
SREYDHTIDAWALGVLAFELLTGAPPFEEEMKDTTYKRIAALDIKMPSNISQDAQDLILK
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Cgggtcccctatactaggttattggaaaggtcgacgcgaccatcctccaaaatcggatctgatc
gaaggtcgtggaGGGCCCCAACGCAATAGTTTAGTAAATATCAAACTAAACGCTAATTCGCCAT

FIG. 31

CGAAAAAGACCACAACAAGACCAAATACGTCCAGGATCAATAAACCATGGAGAATATCCCATTC
GCCGCAGCAAAGAAACCCGAATTCAAAAATACCTTCACCTGTAAGAGAAAAATTGAACAGATTA
CCTGTAAACAATAAGAAGTTTTTGGATATGGAAAGCTCCAAAATTCCATCACCTATAAGGAAAG
CGACTTCTTCCAAAATGATACACGAAAATAAGAAGCTACCTAAATTTAAATCCCTATCACTCGA
TGACTTTGAACTGGGGAAGAAATTAGGAAAGGGTAAATTCGGTAAAGTTTATTGCGTTCGGCAC
AGGAGTACAGGATATATTTGCGCACTGAAAGTAATGGAGAAGGAAGAAATAATAAAGTATAATT
TACAGAAACAATTCAGAAGGCAGCTGGAAATACAAACATCGCTAAATCATCCGAATCTAACTAA
ATCATACGGCTATTTTCATGATGAAAAAAGAGTGTACCTGCTAATGGAATACTTAGTCAATGGG
GAAATGTATAAACTATTGAGGTTACACGGACCCTTCAACGATATTTTAGCATCAGATTATATTT
ATCAAATTGCCAATGCCCTAGATTATATGCATAAAAAGAATATTATTCATAGAGATATTAAACC
TGAAAATATACTAATAGGGTTCAATAATGTCATTAAGTTAACGGACTTCGGATGGAGTATAATA
AATCCGCCAGAAAATAGAAGGAAAACTGTCTGTGGGACAATTGACTACCTTTCTCCAGAAATGG
TGGAGTCAAGGGAATATGATCACACTATAGATGCATGGGCTCTTGGCGTCCTGGCGTTTGAACT
ACTGACCGGTGCCCCTCCGTTCGAAGAAGAAATGAAAGATACTACATATAAAAGGATAGCAGCA
CTGGATATCAAAATGCCCAGTAACATTTCTCAGGATGCGCAAGATTTAATACTTAAACTACTAA
AATACGACCCCAAAGATAGAATGCGCCTTGGAGACGTAAAAATGCATCCTTGGATACTAAGAAA
CAAGCCCTTTTGGGAAAATAAGCGGTTAGAGCTCATGGCAATTCCCGGtggcggccgcatcttt
tacccatacgatgttcctgactatgcgggctatccctatgacgtcccggactatgcaggatcct
atccatatgacgttccagattacgctgctcagtgcggccgctctagctagaactagtggatccc
ccGATACCGTCGACCTGCAGAGATCTAtgaatcgtagatactgaaaaaccccgcaagttcactt
caactgtgcatcgtgcaccatctcaatttctttcatttatacatcgttttgccttcttttatgt
aactatactcctctaagtttcaatcttggccatgtaacctctgatctatagaatttttaaatg
actagaattaatgcccatctttttttggacctaaattcttcatgaaaatatattacgagggct
tattcagaagctttggacttcttcgccagaggtttggtcaagtctccaatcaaggttgtcggct
tgtctaccttgccagaaatttacgaaaagatggaaaagggtcaaatcgttggtagatacgttgt
tgacacttctaaataagcgaatttcttatgatttatgatttttattattaaataagttataaaa
aaaataagtgtatacaaattttaaagtgactcttaggttttaaaacgaaaattcttattcttga
gtaactctttcctgtaggtcaggttgctttctcaggtatagcatgaggtcgctcttattgacca
cacctctaccggcatgccgagcaaatgcctgcaaatcgctccccatttcacccaattgtagata
tgctaactccagcaatgagttgatgaatctcggtgtgtattttatgtcctcagaggacaacacc
tgttgtaatcgttcttccacacggatcctggcgtaatagcgaagaggcccgcaccgatcgccct
tcccaacagttgcgcagcctgaatggcgaatggcgcctgatgcggtattttctccttacgcatc
tgtgcggtatttcacaccgcatatatcgctgggccattctcatgaagaatatcttgaatttatt
gtcatattactagttggtgtggaagtccatatatcggtgatcaatatagtggttgacatgctgg
ctagtcaacattgagccttttgatcatgcaaatatattacggtattttacaatcaaatatcaaa
cttaactattgactttataacttatttaggtggtaacattcttataaaaaagaaaaaaattact
gcaaaacagtactagcttttaacttgtatcctaggttatctatgctgtctcaccatagagaata
ttacctatttcagaatgtatgtccatgattcgccgggtaaatacatataatacacaaatctggc
ttaataaagtctataatatatctcataaagaagtgctaaattggctagtgctatatatttttaa
gaaaatttcttttgactaagtccatatcgactttgtaaaagttcactttagcatacatatatta
cacgagccagaaattgtaacttttgcctaaaatcacaaattgcaaaatttaattgcttgcaaaa
ggtcacatgcttataatcaacttttttaaaaatttaaaatacttttttatttttttatttttaaa
cataaatgaaataatttatttattgtttatgattaccgaaacataaaacctgctcaagaaaaag
aaactgttttgtccttggaaaaaaagcactacctaggagcggccaaaatgccgaggctttcata
gcttaaactctttacagaaaataggcattatagatcagttcgagttttcttattcttccttccg
gttttatcgtcacagttttacagtaaataagtatcacctcttagagttcgatgataagctgtca
aacatgagaattaattccacatgttaaaatagtgaaggagcatgttcggcacacagtggaccga

FIG. 31 Cont.

acgtggggtaagtgcactagggtccggttaaacggatctcgcattgatgaggcaacgctaatta
tcaacatatagattgttatctatctgcatgaacacgaaatctttacttgacgacttgaggctga
tggtgtttatgcaaagaaaccactgtgtttaatatgtgtcactgtttgatattactgtcagcgt
agaagataatagtaaaagcggttaataagtgtatttgagataagtgtgataaagtttttacagc
gaaaagacgataaatacaagaaaatgattacgaggatacggagagaggtatgtacatgtgtatt
tatatactaagctgccggcggttgtttgcaagaccgagaaaaggctagcaagaatcgggtcatt
gtagcgtatgcgcctgtgaacattctcttcaacaagtttgattccattgcggtgaaatggtaaa
agtcaacccccctgcgatgtatattttcctgtacaatcaatcaaaaagccaaatgatttagcatt
atctttacatcttgttattttacagattttatgtttagatcttttatgcttgcttttcaaaagg
cttgcaggcaagtgcacaaacaatacttaaataaatactactcagtaataacctaTTTCTTAGC
ATTTTTGACGAAATTTGCTATTTTGTTAGAGTCTTTTACACCATTTGTCTCCACACCTCCGCTT
ACATCAACACCAATAACGCCATTTAATCTAAGCGCATCACCAACATTTTCTGGCGTCAGTCCAC
CAGCTAACATAAAATGTAAGCTCTCGGGGCTCTCTTGCCTTCCAACCCAGTCAGAAATCGAGTT
CCAATCCAAAAGTTCACCTGTCCCACCTGCTTCTGAATCAAACAAGGGAATAAACGAATGAGGT
TTCTGTGAAGCTGCACTGAGTAGTATGTTGCAGTCTTTTGGAAATACGAGTCTTTTAATAACTG
GCAAACCGAGGAACTCTTGGTATTCTTGCCACGACTCATCTCCATGCAGTTGGACGATATCAAT
GCCGTAATCATTGACCAGAGCCAAAACATCCTCCTTAGGTTGATTACGAAACACGCCAACCAAG
TATTTCGGAGTGCCTGAACTATTTTTATATGCTTTTACAAGACTTGAAATTTTCCTTGCAATAA
CCGGGTCAATTGTTCTCTTTCTATTGGGCACACATATAATACCCAGCAAGTCAGCATCGGAATC
TAGTGCACATTCTGCGGCCTCTGTGCTCTGCAAGCCGCAAACTTTCACCAATGGACCAGAACTA
CCTGTGAAATTAATAACAGACATactccaagctgcctttgtgtgcttaatcacgtatactcacg
tgctcaatagtcaccaatgccctccctcttggccctctccttttctttttttcgaccgaattaat
tcttgaagacgaaagggcctcgtgatacgcctatttttataggttaatgtcatgataataatgg
tttcttagacgtcaggtggcacttttcggggaaatgtgcgcggaacccctatttgtttatttttt
ctaaatacattcaaatatgtatccgctcatgagacaataaccctgataaatgcttcaataatat
tgaaaaaggaagagtATGAGTATTCAACATTTCCGTGTCGCCCTTATTCCCTTTTTTGCGGCAT
TTTGCCTTCCTGTTTTTGCTCACCCAGAAACGCTGGTGAAAGTAAAAGATGCTGAAGATCAGTT
GGGTGCACGAGTGGGTTACATCGAACTGGATCTCAACAGCGGTAAGATCCTTGAGAGTTTTCGC
CCCGAAGAACGTTTTCCAATGATGAGCACTTTTAAAGTTCTGCTATGTGGCGCGGTATTATCCC
GTATTGACGCCGGGCAAGAGCAACTCGGTCGCCGCATACACTATTCTCAGAATGACTTGGTTGA
GTACTCACCAGTCACAGAAAAGCATCTTACGGATGGCATGACAGTAAGAGAATTATGCAGTGCT
GCCATAACCATGAGTGATAACACTGCGGCCAACTTACTTCTGACAACGATCGGAGGACCGAAGG
AGCTAACCGCTTTTTTGCACAACATGGGGGATCATGTAACTCGCCTTGATCGTTGGGAACCGGA
GCTGAATGAAGCCATACCAAACGACGAGCGTGACACCACGATGCCTGTAGCAATGGCAACAACG
TTGCGCAAACTATTAACTGGCGAACTACTTACTCTAGCTTCCCGGCAACAATTAATAGACTGGA
TGGAGGCGGATAAAGTTGCAGGACCACTTCTGCGCTCGGCCCTTCCGGCTGGCTGGTTTATTGC
TGATAAATCTGGAGCCGGTGAGCGTGGGTCTCGCGGTATCATTGCAGCACTGGGGCCAGATGGT
AAGCCCTCCCGTATCGTAGTTATCTACACGACGGGGAGTCAGGCAACTATGGATGAACGAAATA
GACAGATCGCTGAGATAGGTGCCTCACTGATTAAGCATTGGtaactgtcagaccaagtttactc
atatatactttagattgatttaaaacttcatttttaatttaaaaggatctaggtgaagatcctt
tttgataatctcatgaccaaaatcccttaacgtgagttttcgttccactgagcgtcagaccccg
tagaaaagatcaaaggatcttcttgagatccttttttttctgcgcgtaatctgctgcttgcaaac
aaaaaaaccaccgctaccagcggtggtttgtttgccggatcaagagctaccaactctttttccg
aaggtaactggcttcagcagagcgcagataccaaatactgtccttctagtgtagccgtagttag
gccaccacttcaagaactctgtagcaccgcctacatacctcgctctgctaatcctgttaccagt
ggctgctgccagtggcgataagtcgtgtcttaccgggttggactcaagacgatagttaccggat
aaggcgcagcggtcgggctgaacgggggttcgtgcacacagcccagcttggagcgaacgacct

FIG. 31 Cont.

acaccgaactgagatacctacagcgtgagctatgagaaagcgccacgcttcccgaagggagaaa
ggcggacaggtatccggtaagcggcagggtcggaacaggagagcgcacgagggagcttccaggg
ggaaacgcctggtatctttatagtcctgtcgggtttcgccacctctgacttgagcgtcgatttt
tgtgatgctcgtcaggggggcggagcctatggaaaaacgccagcaacgcggccttttacggtt
cctggccttttgctggccttttgctcacatgttctttcctgcgttatcccctgattctgtggat
aaccgtattaccgcctttgagtgagctgataccgctcgccgcagccgaacgaccgagcgcagcg
agtcagtgagcgaggaagcggaagagcgcccaatacgcaaaccgcctctccccgcgcgttggcc
gattcattaatgcaggatccgggatcgaagaaatgatggtaaatgaaataggaaatcaaggagc
atgaaggcaaaagacaaatataagggtcgaacgaaaaataaagtgaaaagtgttgatatgatgt
atttggctttgcggcgccgaaaaaacgagtttacgcaattgcacaatcatgctgactctgtggc
ggacccgcgctcttgccggcccggcgataacgctgggcgtgaggctgtgcccggcggagttttt
tgcgcctgcattttccaaggtttaccctgcgctaaggggcgagattggagaagcaataagaatg
ccggttggggttgcgatgatgacgaccacgacaactggtgtcattatttaagttgccgaaagaa
cctgagtgcatttgcaacatgagtatactagaagaatgagccaagacttgcgagacgcgagttt
gccggtggtgcgaacaatagagcgaccatgaccttgaaggtgagacgcgcataaccgctagagt
actttgaagaggaaacagcaatagggttgctaccagtataaatagacaggtacatacaacactg
gaaatggttgtctgtttgagtacgctttcaattcatttgggtgtgcactttattatgttacaat
atggaagggaactttacacttctcctatgcacatatattaattaaagtccaatgctagtagaga
agggggggtaacacccctccgcgctcttttccgatttttttctaaaccgtggaatatttcggata
tccttttgttgtttccgggtgtacaatatggacttcctcttttctggcaaccaaacccatacat
cgggattcctataataccttcgttggtctccctaacatgtaggtggcggaggggagatatacaa
tagaacagataccagacaagacataatgggctaaacaagactacaccaattacactgcctcatt
gatg
//

FIG. 31 Cont.

434-2041: Gal4 DBD-TEV-Kin28-HAx3
434-874: Gal4 DBD (amino acids 1-147)
932-952: TEV cleavage sequence (ENLYFQG)
953-958: EcoRI
959-964: PuvII
969-974: NcoI
977-1894: Kin28 (cDNA)
1991-2080: trimeric HA

Translation: Gal4 DBD-CTDx3-TEV-Kin28-HAx3
MKLLSSIEQACDICRLKKLKCSKEKPKCAKCLKNNWECRYSPKTKRSPLTRAHLTEVESR
LERLEQLFLLIFPREDLDMILKMDSLQDIKALLTGLFVQDNVNKDAVTDRLASVETDMPL
TLRQHRISATSSSEESSNKGQRQLTVSNYLFDDEDTPPNPKKEIELENLYFQGEFQLTTMA
MKVNMEYTKEKKVGEGTYAVVYLGCQHSTGRKIAIKEIKTSEFKDGLDMSAIREVKYLQE
MQHPNVIELIDIFMAYDNLNLVLEFLPTDLEVVIKDKSILFTPADIKAWMLMTLRGVYHC
HRNFILHRDLKPNNLLFSPDGQIKVADFGLARAIPAPHEILTSNVVTRWYRAPELLFGAK
HYTSAIDIWSVGVIFAELMLRIPYLPGQNDVDQMEVTFRALGTPTDRDWPEVSSFMTYNK
LQIYPPPSRDELRKRFIAASEYALDFMCGMLTMNPQKRWTAVQCLESDYFKELPPPSDPS
SIKIRNVMAIPGGGRIFYPYDVPDYAGYPYDVPDYAGSYPYDVPDYAAQCGRSS-N-WIP
RYRRPAEIYES-ILKNPASSLQLCIVHHLNFFHLYIVLPSFM-LYSSKFQSWPCNL-SIE
FFK-LELMPIFFLDLNS

; DNA sequence pMK498 w/ TEV 8264 b.p. complete sequence
;
gtggtacataacgaactaatactgtagccctagacttgatagccatcatcatatcgaagtttca
ctacccttttccatttgccatctattgaagtaataataggcgcatgcaacttcttttcttttt
ttttctttctctctcccccgttgttgtctcaccatatccgcaatgacaaaaaaatgatggaag
acactaaaggaaaaaattaacgacaaagacagcaccaacagatgtcgttgttccagagctgatg
aggggtatctcgaagcacacgaaacttttccttccttcattgacctgcaattattaatctttt
gtttcctcgtcattgttctcgttccctttcttccttgtttctttttctgcacaatatttcaagc
tataccaagcatacaatcaactccaagcttgaagcaagcctcctgaaagATGAAGCTACTGTCT
TCTATCGAACAAGCATGCGATATTTGCCGACTTAAAAAGCTCAAGTGCTCCAAAGAAAAACCGA
AGTGCGCCAAGTGTCTGAAGAACAACTGGGAGTGTCGCTACTCTCCCAAAACCAAAAGGTCTCC
GCTGACTAGGGCACATCTGACAGAAGTGGAATCAAGGCTAGAAAGACTGGAACAGCTATTTCTA
CTGATTTTTCCTCGAGAAGACCTTGACATGATTTTGAAAATGGATTCTTTACAGGATATAAAAG
CATTGTTAACAGGATTATTTGTACAAGATAATGTGAATAAAGATGCCGTCACAGATAGATTGGC
TTCAGTGGAGACTGATATGCCTCTAACATTGAGACAGCATAGAATAAGTGCGACATCATCATCG
GAAGAGAGTAGTAACAAAGGTCAAAGACAGTTGACTGTATCGAACTATCTATTCGATGATGAAG
ATACCCCACCAAACCCAAAAAAAGAGATCGAATTggagaatttgtattttcagggcgaattcCA
GCTGACCACCATGGCAATGAAAGTGAATATGGAGTACACAAAGGAAAAGAAAGTTGGTGAGGGT
ACTTATGCGGTTGTTTACTTGGGTTGTCAACACTCTACTGGAAGAAAGATTGCTATTAAGGAGA
TCAAAACATCCGAATTTAAAGATGGTTTAGATATGTCAGCTATCCGTGAAGTTAAGTACCTCCA
AGAAATGCAGCATCCGAACGTCATAGAACTAATAGACATATTTATGGCTTATGATAATTTAAAT
CTCGTTCTGGAGTTCCTACCAACTGATCTAGAGGTGGTAATAAAAGACAAATCAATACTGTTTA
CACCAGCAGATATTAAGGCATGGATGCTTATGACTTTGAGGGGCGTGTATCATTGCCACAGAAA
TTTCATTTTGCACAGGGATCTGAAACCAAACAATTTATTATTTTCACCTGATGGCCAGATAAAA

FIG. 32

GTAGCAGATTTCGGTCTAGCAAGGGCGATACCGGCCCCACATGAGATACTGACAAGTAACGTCG
TAACAAGATGGTATAGAGCGCCAGAATTGTTGTTTGGAGCTAAACATTACACATCGGCTATTGA
TATCTGGTCAGTAGGCGTTATATTCGCGGAATTAATGCTAAGGATACCTTATTTACCAGGACAG
AATGATGTCGATCAAATGGAAGTAACGTTCAGGGCCTTAGGGACACCTACAGATAGAGATTGGC
CCGAAGTTTCTTCCTTTATGACGTATAACAAGTTACAAATATATCCGCCCCCTTCAAGAGATGA
ATTGAGGAAAAGGTTCATTGCTGCTAGCGAATACGCCTTAGATTTTATGTGTGGAATGCTAACG
ATGAACCCACAAAAGAGGTGGACCGCTGTTCAGTGTTTAGAAAGTGATTATTTCAAAGAATTAC
CACCACCAAGTGACCCGTCTTCAATAAAAATACGTAACgtcatggCAATTCCCGGtggcggccg
catcttttacccatacgatgttcctgactatgcgggctatccctatgacgtcccggactatgca
ggatcctatccatatgacgttccagattacgctgctcagtgcggccgctctagctagaactagt
ggatcccccgataCCGTCGACCTGCAGAGATCTAtgaatcgtagatactgaaaaaccccgcaag
ttcacttcaactgtgcatcgtgcaccatctcaatttctttcatttatacatcgttttgccttct
tttatgtaactatactcctctaagtttcaatcttggccatgtaacctctgatctatagaatttt
ttaaatgactagaattaatgcccatctttttttggacctaaattcttcatgaaaatatattac
gagggcttattcagaagctttggacttcttcgccagaggtttggtcaagtctccaatcaaggtt
gtcggcttgtctaccttgccagaaatttacgaaaagatggaaaagggtcaaatcgttggtagat
acgttgttgacacttctaaataagcgaatttcttatgatttatgatttttattattaaataagt
tataaaaaaaataagtgtatacaaattttaaagtgactcttaggttttaaaacgaaaattctta
ttcttgagtaactctttcctgtaggtcaggttgctttctcaggtatagcatgaggtcgctctta
ttgaccacacctctaccggcatgccgagcaaatgcctgcaaatcgctccccatttcacccaatt
gtagatatgctaactccagcaatgagttgatgaatctcggtgtgtattttatgtcctcagagga
caacacctgttgtaatcgttcttccacacggatcctggcgtaatagcgaagaggcccgcaccga
tcgcccttcccaacagttgcgcagcctgaatggcgaatggcgcctgatgcggtattttctcctt
acgcatctgtgcggtatttcacaccgcatatatcgctgggccattctcatgaagaatatcttga
atttattgtcatattactagttggtgtggaagtccatatatcggtgatcaatatagtggttgac
atgctggctagtcaacattgagccttttgatcatgcaaatatattacggtattttacaatcaaa
tatcaaacttaactattgactttataacttatttaggtggtaacattcttataaaaaagaaaaa
aattactgcaaaacagtactagcttttaacttgtatcctaggttatctatgctgtctcaccata
gagaatattacctatttcagaatgtatgtccatgattcgccgggtaaatacatataatacacaa
atctggcttaataaagtctataatatatctcataaagaagtgctaaattggctagtgctatata
tttttaagaaaatttcttttgactaagtccatatcgactttgtaaaagttcactttagcataca
tatattacacgagccagaaattgtaacttttgcctaaaatcacaaattgcaaaatttaattgct
tgcaaaaggtcacatgcttataatcaacttttttaaaaatttaaaatacttttttatttttttat
ttttaaacataaatgaaataatttatttattgtttatgattaccgaaacataaaacctgctcaa
gaaaaagaaactgttttgtccttggaaaaaaagcactacctaggagcggccaaaatgccgaggc
tttcatagcttaaactctttacagaaaataggcattatagatcagttcgagttttcttattctt
ccttccggttttatcgtcacagttttacagtaaataagtatcacctcttagagttcgatgataa
gctgtcaaacatgagaattaattccacatgttaaaatagtgaaggagcatgttcggcacacagt
ggaccgaacgtggggtaagtgcactagggtccggttaaacggatctcgcattgatgaggcaacg
ctaattatcaacatatagattgttatctatctgcatgaacacgaaatctttacttgacgacttg
aggctgatggtgtttatgcaaagaaaccactgtgtttaatatgtgtcactgtttgatattactg
tcagcgtagaagataatagtaaaagcggttaataagtgtatttgagataagtgtgataaagttt
ttacagcgaaaagacgataaatacaagaaaatgattacgaggatacggagagaggtatgtacat
gtgtatttatatactaagctgccggcggttgtttgcaagaccgagaaaaggctagcaagaatcg
ggtcattgtagcgtatgcgcctgtgaacattctcttcaacaagtttgattccattgcggtgaaa
tggtaaaagtcaacccccctgcgatgtatattttcctgtacaatcaatcaaaaagccaaatgatt
tagcattatctttacatcttgttattttacagattttatgtttagatcttttatgcttgctttt

FIG. 32 Cont.

caaaaggcttgcaggcaagtgcacaaacaatacttaaataaatactactcagtaataacctaTT
TCTTAGCATTTTTGACGAAATTTGCTATTTTGTTAGAGTCTTTTACACCATTTGTCTCCACACC
TCCGCTTACATCAACACCAATAACGCCATTTAATCTAAGCGCATCACCAACATTTTCTGGCGTC
AGTCCACCAGCTAACATAAAATGTAAGCTCTCGGGGCTCTCTTGCCTTCCAACCCAGTCAGAAA
TCGAGTTCCAATCCAAAAGTTCACCTGTCCCACCTGCTTCTGAATCAAACAAGGGAATAAACGA
ATGAGGTTTCTGTGAAGCTGCACTGAGTAGTATGTTGCAGTCTTTTGGAAATACGAGTCTTTTA
ATAACTGGCAAACCGAGGAACTCTTGGTATTCTTGCCACGACTCATCTCCATGCAGTTGGACGA
TATCAATGCCGTAATCATTGACCAGAGCCAAAACATCCTCCTTAGGTTGATTACGAAACACGCC
AACCAAGTATTTCGGAGTGCCTGAACTATTTTTATATGCTTTTACAAGACTTGAAATTTTCCTT
GCAATAACCGGGTCAATTGTTCTCTTTCTATTGGGCACACATATAATACCCAGCAAGTCAGCAT
CGGAATCTAGTGCACATTCTGCGGCCTCTGTGCTCTGCAAGCCGCAAACTTTCACCAATGGACC
AGAACTACCTGTGAAATTAATAACAGACATactccaagctgcctttgtgtgcttaatcacgtat
actcacgtgctcaatagtcaccaatgccctccctcttggccctctccttttctttttcgaccg
aattaattcttgaagacgaaagggcctcgtgatacgcctatttttataggttaatgtcatgata
ataatggtttcttagacgtcaggtggcacttttcggggaaatgtgcgcggaacccctatttgtt
tatttttctaaatacattcaaatatgtatccgctcatgagacaataaccctgataaatgcttca
ataatattgaaaaaggaagagtATGAGTATTCAACATTTCCGTGTCGCCCTTATTCCCTTTTTT
GCGGCATTTTGCCTTCCTGTTTTTGCTCACCCAGAAACGCTGGTGAAAGTAAAAGATGCTGAAG
ATCAGTTGGGTGCACGAGTGGGTTACATCGAACTGGATCTCAACAGCGGTAAGATCCTTGAGAG
TTTTCGCCCCGAAGAACGTTTTCCAATGATGAGCACTTTTAAAGTTCTGCTATGTGGCGCGGTA
TTATCCCGTATTGACGCCGGGCAAGAGCAACTCGGTCGCCGCATACACTATTCTCAGAATGACT
TGGTTGAGTACTCACCAGTCACAGAAAAGCATCTTACGGATGGCATGACAGTAAGAGAATTATG
CAGTGCTGCCATAACCATGAGTGATAACACTGCGGCCAACTTACTTCTGACAACGATCGGAGGA
CCGAAGGAGCTAACCGCTTTTTTGCACAACATGGGGGATCATGTAACTCGCCTTGATCGTTGGG
AACCGGAGCTGAATGAAGCCATACCAAACGACGAGCGTGACACCACGATGCCTGTAGCAATGGC
AACAACGTTGCGCAAACTATTAACTGGCGAACTACTTACTCTAGCTTCCCGGCAACAATTAATA
GACTGGATGGAGGCGGATAAAGTTGCAGGACCACTTCTGCGCTCGGCCCTTCCGGCTGGCTGGT
TTATTGCTGATAAATCTGGAGCCGGTGAGCGTGGGTCTCGCGGTATCATTGCAGCACTGGGGCC
AGATGGTAAGCCCTCCCGTATCGTAGTTATCTACACGACGGGGAGTCAGGCAACTATGGATGAA
CGAAATAGACAGATCGCTGAGATAGGTGCCTCACTGATTAAGCATTGGtaactgtcagaccaag
tttactcatatatactttagattgatttaaaacttcatttttaatttaaaaggatctaggtgaa
gatccttttgataatctcatgaccaaaatcccttaacgtgagttttcgttccactgagcgtca
gaccccgtagaaaagatcaaaggatcttcttgagatccttttttttctgcgcgtaatctgctgct
tgcaaacaaaaaaaccaccgctaccagcggtggtttgtttgccggatcaagagctaccaactct
ttttccgaaggtaactggcttcagcagagcgcagataccaaatactgtccttctagtgtagccg
tagttaggccaccacttcaagaactctgtagcaccgcctacatacctcgctctgctaatcctgt
taccagtggctgctgccagtggcgataagtcgtgtcttaccgggttggactcaagacgatagtt
accggataaggcgcagcggtcgggctgaacgggggttcgtgcacacagcccagcttggagcga
acgacctacaccgaactgagatacctacagcgtgagctatgagaaagcgccacgcttcccgaag
ggagaaaggcggacaggtatccggtaagcggcagggtcggaacaggagagcgcacgagggagct
tccagggggaaacgcctggtatctttatagtcctgtcgggtttcgccacctctgacttgagcgt
cgatttttgtgatgctcgtcaggggggcggagcctatggaaaaacgccagcaacgcggccttttt
tacggttcctggccttttgctggccttttgctcacatgttctttcctgcgttatcccctgattc
tgtggataaccgtattaccgcctttgagtgagctgataccgctcgccgcagccgaacgaccgag
cgcagcgagtcagtgagcgaggaagcggaagagcgcccaatacgcaaaccgcctctccccgcgc
gttggccgattcattaatgcaggatccgggatcgaagaaatgatggtaaatgaaataggaaatc
aaggagcatgaaggcaaaagacaaatataagggtcgaacgaaaaataaagtgaaaagtgttgat

FIG. 32 Cont.

atgatgtatttggctttgcggcgccgaaaaaacgagtttacgcaattgcacaatcatgctgact
ctgtggcggacccgcgctcttgccggcccggcgataacgctgggcgtgaggctgtgcccggcgg
agtttttgcgcctgcattttccaaggtttaccctgcgctaaggggcgagattggagaagcaat
aagaatgccggttggggttgcgatgatgacgaccacgacaactggtgtcattatttaagttgcc
gaaagaacctgagtgcatttgcaacatgagtatactagaagaatgagccaagacttgcgagacg
cgagtttgccggtggtgcgaacaatagagcgaccatgaccttgaaggtgagacgcgcataaccg
ctagagtactttgaagaggaaacagcaatagggttgctaccagtataaatagacaggtacatac
aacactggaaatggttgtctgtttgagtacgctttcaattcatttgggtgtgcactttattatg
ttacaatatggaagggaactttacacttctcctatgcacatatattaattaaagtccaatgcta
gtagagaagggggggtaacacccctccgcgctcttttccgatttttttctaaaccgtggaatatt
tcggatatccttttgttgtttccgggtgtacaatatggacttcctcttttctggcaaccaaaacc
catacatcgggattcctataataccttcgttggtctccctaacatgtaggtggcggaggggaga
tatacaatagaacagataccagacaagacataatgggctaaacaagactacaccaattacactg
cctcattgatg
//

FIG. 32 Cont.

434-2104: Gal4 DBD-TEV-CTDx3-Kin28-HAx3
434-874: Gal4 DBD (amino acids 1-147)
932-952: TEV cleavage sequence (ENLYFQG)
962-1024: CTD (three tandem repeats of YSTPSPS)
1040-1957: Kin28 (cDNA)
1991-2080: trimeric HA

Translation: Gal4 DBD-CTDx3-TEV-Kin28-HAx3
MKLLSSIEQACDICRLKKLKCSKEKPKCAKCLKNNWECRYSPKTKRSPLTRAHLTEVESRLERL
EQLFLLIFPREDLDMILKMDSLQDIKALLTGLFVQDNVNKDAVTDRLASVETDMPLTLRQHRIS
ATSSSEESSNKGQRQLTVSNYLFDDEDTPPNPKKEIELENLYFQGEFQYSPTSPSYSLTSPSYS
PTSPSLTTMAMKVNMEYTKEKKVGEGTYAVVYLGCQHSTGRKIAIKEIKTSEFKDGLDMSAIRE
VKYLQEMQHPNVIELIDIFMAYDNLNLVLEFLPTDLEVVIKDKSILFTPADIKAWMLMTLRGVY
HCHRNFILHRDLKPNNLLFSPDGQIKVADFGLARAIPAPHEILTSNVVTRWYRAPELLFGAKHY
TSAIDIWSVGVIFAELMLRIPYLPGQNDVDQMEVTFRALGTPTDRDWPEVSSFMTYNKLQIYPP
PSRDELRKRFIAASEYALDFMCGMLTMNPQKRWTAVQCLESDYFKELPPPSDPSSIKIRNVMAI
PGGGRIFYPYDVPDYAGYPYDVPDYAGSYPYDVPDYAAQCGRSS

; ### from DNA Strider Thursday, February 5, 2004 12:10:50 PM
; DNA sequence pMK500 w/ TEV 8330 b.p. complete sequence
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gtttcctcgtcattgttctcgttccctttcttccttgtttctttttctgcacaatatttcaagc
tataccaagcatacaatcaactccaagcttgaagcaagcctcctgaaagATGAAGCTACTGTCT
TCTATCGAACAAGCATGCGATATTTGCCGACTTAAAAAGCTCAAGTGCTCCAAAGAAAAACCGA
AGTGCGCCAAGTGTCTGAAGAACAACTGGGAGTGTCGCTACTCTCCCAAAACCAAAAGGTCTCC
GCTGACTAGGGCACATCTGACAGAAGTGGAATCAAGGCTAGAAAGACTGGAACAGCTATTTCTA
CTGATTTTTCCTCGAGAAGACCTTGACATGATTTTGAAAATGGATTCTTTACAGGATATAAAAG
CATTGTTAACAGGATTATTTGTACAAGATAATGTGAATAAAGATGCCGTCACAGATAGATTGGC
TTCAGTGGAGACTGATATGCCTCTAACATTGAGACAGCATAGAATAAGTGCGACATCATCATCG
GAAGAGAGTAGTAACAAAGGTCAAAGACAGTTGACTGTATCGAACTATCTATTCGATGATGAAG
ATACCCCACCAAACCCAAAAAAAGAGATCGAATTggagaatttgtattttcagggtGAATTCCA
Gtattcgccaactagtccttcgtattcgccaactagtccttcgtattcgccaactagtccttcg
CTGACCACCATGGCAATGAAAGTGAATATGGAGTACACAAAGGAAAAGAAAGTTGGTGAGGGTA
CTTATGCGGTTGTTTACTTGGGTTGTCAACACTCTACTGGAAGAAAGATTGCTATTAAGGAGAT
CAAAACATCCGAATTTAAAGATGGTTTAGATATGTCAGCTATCCGTGAAGTTAAGTACCTCCAA
GAAATGCAGCATCCGAACGTCATAGAACTAATAGACATATTTATGGCTTATGATAATTTAAATC
TCGTTCTGGAGTTCCTACCAACTGATCTAGAGGTGGTAATAAAAGACAAATCAATACTGTTTAC
ACCAGCAGATATTAAGGCATGGATGCTTATGACTTTGAGGGGCGTGTATCATTGCCACAGAAAT
TTCATTTTGCACAGGGATCTGAAACCAAACAATTTATTATTTTCACCTGATGGCCAGATAAAAG
TAGCAGATTTCGGTCTAGCAAGGGCGATACCGGCCCCACATGAGATACTGACAAGTAACGTCGT
AACAAGATGGTATAGAGCGCCAGAATTGTTGTTTGGAGCTAAACATTACACATCGGCTATTGAT
ATCTGGTCAGTAGGCGTTATATTCGCGGAATTAATGCTAAGGATACCTTATTTACCAGGACAGA

FIG. 33

ATGATGTCGATCAAATGGAAGTAACGTTCAGGGCCTTAGGGACACCTACAGATAGAGATTGGCC
CGAAGTTTCTTCCTTTATGACGTATAACAAGTTACAAATATATCCGCCCCCTTCAAGAGATGAA
TTGAGGAAAAGGTTCATTGCTGCTAGCGAATACGCCTTAGATTTTATGTGTGGAATGCTAACGA
TGAACCCACAAAAGAGGTGGACCGCTGTTCAGTGTTTAGAAAGTGATTATTTCAAAGAATTACC
ACCACCAAGTGACCCGTCTTCAATAAAAATACGTAACgtcatggCAATTCCCGGtggcggccgc
atcttttacccatacgatgttcctgactatgcgggctatccctatgacgtcccggactatgcag
gatcctatccatatgacgttccagattacgctgctcagtgcggccgctctagctagaactagtg
gatcccccgataCCGTCGACCTGCAGAGATCTAtgaatcgtagatactgaaaaaccccgcaagt
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agaatattacctatttcagaatgtatgtccatgattcgccgggtaaatacatataatacacaaa
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gaccgaacgtggggtaagtgcactagggtccggttaaacggatctcgcattgatgaggcaacgc
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cagcgtagaagataatagtaaaagcggttaataagtgtatttgagataagtgtgataaagtttt
tacagcgaaaagacgataaatacaagaaaatgattacgaggatacggagagaggtatgtacatg
tgtatttatatactaagctgccggcggttgtttgcaagaccgagaaaaggctagcaagaatcgg
gtcattgtagcgtatgcgcctgtgaacattctcttcaacaagtttgattccattgcggtgaaat
ggtaaaagtcaacccccctgcgatgtatattttcctgtacaatcaatcaaaaagccaaatgattt
agcattatctttacatcttgttattttacagattttatgtttagatcttttatgcttgcttttc
aaaaggcttgcaggcaagtgcacaaacaatacttaaataaatactactcagtaataacctaTTT
CTTAGCATTTTTGACGAAATTTGCTATTTTGTTAGAGTCTTTTACACCATTTGTCTCCACACCT
CCGCTTACATCAACACCAATAACGCCATTTAATCTAAGCGCATCACCAACATTTTCTGGCGTCA

FIG. 33 Cont.

GTCCACCAGCTAACATAAAATGTAAGCTCTCGGGGCTCTCTTGCCTTCCAACCCAGTCAGAAAT
CGAGTTCCAATCCAAAAGTTCACCTGTCCCACCTGCTTCTGAATCAAACAAGGGAATAAACGAA
TGAGGTTTCTGTGAAGCTGCACTGAGTAGTATGTTGCAGTCTTTTGGAAATACGAGTCTTTTAA
TAACTGGCAAACCGAGGAACTCTTGGTATTCTTGCCACGACTCATCTCCATGCAGTTGGACGAT
ATCAATGCCGTAATCATTGACCAGAGCCAAAACATCCTCCTTAGGTTGATTACGAAACACGCCA
ACCAAGTATTTCGGAGTGCCTGAACTATTTTTATATGCTTTTACAAGACTTGAAATTTTCCTTG
CAATAACCGGGTCAATTGTTCTCTTTCTATTGGGCACACATATAATACCCAGCAAGTCAGCATC
GGAATCTAGTGCACATTCTGCGGCCTCTGTGCTCTGCAAGCCGCAAACTTTCACCAATGGACCA
GAACTACCTGTGAAATTAATAACAGACATactccaagctgcctttgtgtgcttaatcacgtata
ctcacgtgctcaatagtcaccaatgccctccctcttggccctctccttttctttttttcgaccga
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taatggtttcttagacgtcaggtggcacttttcggggaaatgtgcgcggaacccctatttgttt
atttttctaaatacattcaaatatgtatccgctcatgagacaataaccctgataaatgcttcaa
taatattgaaaaaggaagagtATGAGTATTCAACATTTCCGTGTCGCCCTTATTCCCTTTTTTG
CGGCATTTTGCCTTCCTGTTTTTGCTCACCCAGAAACGCTGGTGAAAGTAAAAGATGCTGAAGA
TCAGTTGGGTGCACGAGTGGGTTACATCGAACTGGATCTCAACAGCGGTAAGATCCTTGAGAGT
TTTCGCCCCGAAGAACGTTTTCCAATGATGAGCACTTTTAAAGTTCTGCTATGTGGCGCGGTAT
TATCCCGTATTGACGCCGGGCAAGAGCAACTCGGTCGCCGCATACACTATTCTCAGAATGACTT
GGTTGAGTACTCACCAGTCACAGAAAAGCATCTTACGGATGGCATGACAGTAAGAGAATTATGC
AGTGCTGCCATAACCATGAGTGATAACACTGCGGCCAACTTACTTCTGACAACGATCGGAGGAC
CGAAGGAGCTAACCGCTTTTTTGCACAACATGGGGGATCATGTAACTCGCCTTGATCGTTGGGA
ACCGGAGCTGAATGAAGCCATACCAAACGACGAGCGTGACACCACGATGCCTGTAGCAATGGCA
ACAACGTTGCGCAAACTATTAACTGGCGAACTACTTACTCTAGCTTCCCGGCAACAATTAATAG
ACTGGATGGAGGCGGATAAAGTTGCAGGACCACTTCTGCGCTCGGCCCTTCCGGCTGGCTGGTT
TATTGCTGATAAATCTGGAGCCGGTGAGCGTGGGTCTCGCGGTATCATTGCAGCACTGGGGCCA
GATGGTAAGCCCTCCCGTATCGTAGTTATCTACACGACGGGGAGTCAGGCAACTATGGATGAAC
GAAATAGACAGATCGCTGAGATAGGTGCCTCACTGATTAAGCATTGGtaactgtcagaccaagt
ttactcatatatactttagattgatttaaaacttcatttttaatttaaaaggatctaggtgaag
atccttttgataatctcatgaccaaaatcccttaacgtgagttttcgttccactgagcgtcag
accccgtagaaaagatcaaaggatcttcttgagatccttttttttctgcgcgtaatctgctgctt
gcaaacaaaaaaaccaccgctaccagcggtggtttgtttgccggatcaagagctaccaactctt
tttccgaaggtaactggcttcagcagagcgcagataccaaatactgtccttctagtgtagccgt
agttaggccaccacttcaagaactctgtagcaccgcctacatacctcgctctgctaatcctgtt
accagtggctgctgccagtggcgataagtcgtgtcttaccgggttggactcaagacgatagtta
ccggataaggcgcagcggtcgggctgaacgggggggttcgtgcacacagcccagcttggagcgaa
cgacctacaccgaactgagatacctacagcgtgagctatgagaaagcgccacgcttcccgaagg
gagaaaggcggacaggtatccggtaagcggcagggtcggaacaggagagcgcacgagggagctt
ccaggggaaacgcctggtatctttatagtcctgtcgggtttcgccacctctgacttgagcgtc
gatttttgtgatgctcgtcaggggggcggagcctatggaaaaacgccagcaacgcggccttttt
acggttcctggccttttgctggccttttgctcacatgttctttcctgcgttatcccctgattct
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ttggccgattcattaatgcaggatccgggatcgaagaaatgatggtaaatgaaataggaaatca
aggagcatgaaggcaaaagacaaatataagggtcgaacgaaaaataaagtgaaaagtgttgata
tgatgtatttggctttgcggcgccgaaaaaacgagtttacgcaattgcacaatcatgctgactc
tgtggcggacccgcgctcttgccggcccggcgataacgctgggcgtgaggctgtgcccggcgga
gtttttgcgcctgcattttccaaggtttaccctgcgctaaggggcgagattggagaagcaata

FIG. 33 Cont.

agaatgccggttggggttgcgatgatgacgaccacgacaactggtgtcattatttaagttgccg
aaagaacctgagtgcatttgcaacatgagtatactagaagaatgagccaagacttgcgagacgc
gagtttgccggtggtgcgaacaatagagcgaccatgaccttgaaggtgagacgcgcataaccgc
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acactggaaatggttgtctgtttgagtacgctttcaattcatttgggtgtgcactttattatgt
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cggatatccttttgttgtttccgggtgtacaatatggacttcctcttttctggcaaccaaaccc
atacatcgggattcctataataccttcgttggtctccctaacatgtaggtggcggaggggagat
atacaatagaacagataccagacaagacataatgggctaaacaagactacaccaattacactgc
ctcattgatg
//

FIG. 33 Cont.

434-2104: Gal4 DBD-TEV-CTDx3-Kin28-HAx3
434-874: Gal4 DBD (amino acids 1-147)
932-952: TEV cleavage sequence (ENLYFQG)
962-1024: CTD (three tandem repeats of YSTPSPS)
1040-1957: Kin28 (cDNA) with E54Q mutation
1991-2080: trimeric HA

Translation: Gal4 DBD-CTDx3-TEV-Kin28-HAx3
MKLLSSIEQACDICRLKKLKCSKEKPKCAKCLKNNWECRYSPKTKRSPLTRAHLTEVESRLERL
EQLFLLIFPREDLDMILKMDSLQDIKALLTGLFVQDNVNKDAVTDRLASVETDMPLTLRQHRIS
ATSSSEESSNKGQRQLTVSNYLFDDEDTPPNPKKEIELENLYFQGEFQYSPTSPSYSLTSPSYS
PTSPSLTTMAMKVNMEYTKEKKVGEGTYAVVYLGCQHSTGRKIAIKEIKTSEFKDGLDMSAIRQ
VKYLQEMQHPNVIELIDIFMAYDNLNLVLEFLPTDLEVVIKDKSILFTPADIKAWMLMTLRGVY
HCHRNFILHRDLKPNNLLFSPDGQIKVADFGLARAIPAPHEILTSNVVTRWYRAPELLFGAKHY
TSAIDIWSVGVIFAELMLRIPYLPGQNDVDQMEVTFRALGTPTDRDWPEVSSFMTYNKLQIYPP
PSRDELRKRFIAASEYALDFMCGMLTMNPQKRWTAVQCLESDYFKELPPPSDPSSIKIRNVMAI
PGGGRIFYPYDVPDYAGYPYDVPDYAGSYPYDVPDYAAQCGRSS

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TCTATCGAACAAGCATGCGATATTTGCCGACTTAAAAAGCTCAAGTGCTCCAAAGAAAAACCGA
AGTGCGCCAAGTGTCTGAAGAACAACTGGGAGTGTCGCTACTCTCCCAAAACCAAAAGGTCTCC
GCTGACTAGGGCACATCTGACAGAAGTGGAATCAAGGCTAGAAAGACTGGAACAGCTATTTCTA
CTGATTTTTCCTCGAGAAGACCTTGACATGATTTTGAAAATGGATTCTTTACAGGATATAAAAG
CATTGTTAACAGGATTATTTGTACAAGATAATGTGAATAAAGATGCCGTCACAGATAGATTGGC
TTCAGTGGAGACTGATATGCCTCTAACATTGAGACAGCATAGAATAAGTGCGACATCATCATCG
GAAGAGAGTAGTAACAAAGGTCAAAGACAGTTGACTGTATCGAACTATCTATTCGATGATGAAG
ATACCCCACCAAACCCAAAAAAAGAGATCGAATTggagaatttgtattttcagggtGAATTCCA
Gtattcgccaactagtccttcgtattcgccaactagtccttcgtattcgccaactagtccttcg
CTGACCACCATGGCAATGAAAGTGAATATGGAGTACACAAAGGAAAAGAAAGTTGGTGAGGGTA
CTTATGCGGTTGTTTACTTGGGTTGTCAACACTCTACTGGAAGAAAGATTGCTATTAAGGAGAT
CAAAACATCCGAATTTAAAGATGGTTTAGATATGTCAGCTATCCGTCAACTTAAGTACCTCCAA
GAAATGCAGCATCCGAACGTCATAGAACTAATAGACATATTTATGGCTTATGATAATTTAAATC
TCGTTCTGGAGTTCCTACCAACTGATCTAGAGGTGGTAATAAAAGACAAATCAATACTGTTTAC
ACCAGCAGATATTAAGGCATGGATGCTTATGACTTTGAGGGGCGTGTATCATTGCCACAGAAAT
TTCATTTTGCACAGGGATCTGAAACCAAACAATTTATTATTTTCACCTGATGGCCAGATAAAAG
TAGCAGATTTCGGTCTAGCAAGGGCGATACCGGCCCCACATGAGATACTGACAAGTAACGTCGT

FIG. 34

AACAAGATGGTATAGAGCGCCAGAATTGTTGTTTGGAGCTAAACATTACACATCGGCTATTGAT
ATCTGGTCAGTAGGCGTTATATTCGCGGAATTAATGCTAAGGATACCTTATTTACCAGGACAGA
ATGATGTCGATCAAATGGAAGTAACGTTCAGGGCCTTAGGGACACCTACAGATAGAGATTGGCC
CGAAGTTTCTTCCTTTATGACGTATAACAAGTTACAAATATATCCGCCCCCTTCAAGAGATGAA
TTGAGGAAAAGGTTCATTGCTGCTAGCGAATACGCCTTAGATTTTATGTGTGGAATGCTAACGA
TGAACCCACAAAAGAGGTGGACCGCTGTTCAGTGTTTAGAAAGTGATTATTTCAAAGAATTACC
ACCACCAAGTGACCCGTCTTCAATAAAAATACGTAACgtcatggCAATTCCCGGtggcggccgc
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agaatattacctatttcagaatgtatgtccatgattcgccgggtaaatacatataatacacaaa
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ttttaagaaaatttcttttgactaagtccatatcgactttgtaaaagttcactttagcatacat
atattacacgagccagaaattgtaacttttgcctaaaatcacaaattgcaaaatttaattgctt
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gaccgaacgtggggtaagtgcactagggtccggttaaacggatctcgcattgatgaggcaacgc
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tacagcgaaaagacgataaatacaagaaaatgattacgaggatacggagagaggtatgtacatg
tgtatttatatactaagctgccggcggttgtttgcaagaccgagaaaaggctagcaagaatcgg
gtcattgtagcgtatgcgcctgtgaacattctcttcaacaagtttgattccattgcggtgaaat
ggtaaaagtcaacccccctgcgatgtatattttcctgtacaatcaatcaaaaagccaaatgattt
agcattatctttacatcttgttattttacagattttatgtttagatcttttatgcttgcttttc
aaaaggcttgcaggcaagtgcacaaacaatacttaaataaatactactcagtaataacctaTTT

FIG. 34 Cont.

tgtggcggacccgcgctcttgccggcccggcgataacgctgggcgtgaggctgtgcccggcgga
gtttttgcgcctgcattttccaaggtttaccctgcgctaaggggcgagattggagaagcaata
agaatgccggttggggttgcgatgatgacgaccacgacaactggtgtcattatttaagttgccg
aaagaacctgagtgcatttgcaacatgagtatactagaagaatgagccaagacttgcgagacgc
gagtttgccggtggtgcgaacaatagagcgaccatgaccttgaaggtgagacgcgcataaccgc
tagagtactttgaagaggaaacagcaatagggttgctaccagtataaatagacaggtacataca
acactggaaatggttgtctgtttgagtacgctttcaattcatttgggtgtgcactttattatgt
tacaatatggaagggaactttacacttctcctatgcacatatattaattaaagtccaatgctag
tagagaaggggggtaacacccctccgcgctcttttccgatttttttctaaaccgtggaatattt
cggatatccttttgttgtttccgggtgtacaatatggacttcctcttttctggcaaccaaaccc
atacatcgggattcctataataccttcgttggtctccctaacatgtaggtggcggaggggagat
atacaatagaacagataccagacaagacataatgggctaaacaagactacaccaattacactgc
ctcattgatg
//

FIG. 34 Cont.